College and Career Readiness Standards / Texas Essential Knowledge and Skills Alignment
Mathematics

CCRS	Foundation		Enrichment	
	Math	**Science**	**CTE**	**Technology Applications**
I. Numeric Reasoning				
A. Number representations and operations				
I.A.1. Compare relative magnitudes of rational and irrational numbers, [real numbers] and understand that numbers can be represented in different ways.	Kindergarten: (2)(A), (2)(C), (2)(E)-(H) Grade 1: (2)(D)-(G), (5)(A), (5)(C) Grade 2: (2)(C)-(F), (3)(B), (7)(B), (9)(B)-(C) Grade 3: (2)(B)-(D), (3)(F)-(H) Grade 4: (2)(A), (2)(C), (2)(F)-(H), (3)(D), (3)(G) Grade 5: (2)(B), (4)(A) Grade 6: (2)(B), (2)(D), (5)(C), (5)(F) Grade 8: (2)(D), (12)(D) Advanced Quantitative Reasoning: (2)(A)	Grade 8: [(5)(F),] (8)(B)-(C) [(8)(B)-(D)] Astronomy: (6)(A)-(D), (9)(A)-(B), (10)(A), (11)(E) Chemistry: (5)(C) Earth and Space Science: (5)(E)-(F), (15)(C) Integrated Physics and Chemistry: (4)(C)-(D), (4)(F) [-(G)], (5)(F), [(5)(H), (6)(A),] (6)(C) [-(E)], (7)(B)-(C) [(7)(A)-(F)] Physics: (4)(A)-(D), (5)(B)-(C), [(5)(H),] (7)(B)-(E) [(7)(B)-(D)] , (8)(B)-(C)	[Accounting II: (1)(B), (4)(H), (6)(K)(iii), (6)(K)(v), (6)(R)(v); Applied Mathematics for Technical Professionals: (5)(C); Engineering Mathematics: (6)(B), (7)(C), (8)(E), (9)(D), (9)(G), (11)(A), (11)(D)-(F); Financial Mathematics: (3)(B), (3)(G), (3)(K)-(L), (4)(E), (4)(K), (5)(D)-(F), (6)(A), (6)(C), (7)(A), (7)(C), (7)(I), (7)(K)-(L), (8)(C)-(D), (9)(A), (9)(C)-(D), (10)(A), (10)(E), (11)(A), (14), (15)(C), (17)(F); Manufacturing Engineering Technology II: (3)(B); Mathematical Applications in Agriculture, Food, and Natural Resources: (5)(A); Mathematics for Medical Professionals: (3)(B), (6)(A)-(B); Robotics II: (8)(F)-(G), (8)(I); Statistics and Business Decision Making: (6)(A)-(B), (7)(B)-(C); Principles of Technology: (4)(F), (12)(D), (13)(D); Engineering Science: (12)(E); Biotechnology I: (7)(C); Biotechnology II: (4)(G); Scientific Research and Design: (4)(G); Securities and Investments: (4)(A-E); Banking and Financial Services: (9)(B); Accounting I: (10)(C)(E), (11)(C-E), Financial Analysis: (5)(B)-(C),(6)(B); Welding II: (3)(E)] Accounting II: (4)(H); Engineering Mathematics: (9)(D), (11)(E); Financial Mathematics: (3)(K), (4)(K), (7)(I), (8)(C)-(D); Mathematical Applications in Agriculture, Food, and Natural Resources: (5)(A); Mathematics for Medical Professionals: (6)(A)-(B); Principles of Technology: (4)(E), (12)(D); Engineering Science: (12)(E); Biotechnology II: (4)(G); Scientific Research and Design: (4)(G); Securities and Investments: (4)(A-E); Banking and Financial Services: (9)(B); Accounting I: (10)(C)(E), (11)(C-E), Financial Analysis: (5)(B)-(C),(6)(B); Welding II: (3)(E)	Robotics Programming and Design: (5)(E), (7)(R)
I.A.2. Perform computations with rational and irrational numbers. [Define and give examples of complex numbers.]	Kindergarten: (2)(I), (3)(A)-(C) Grade 1: (3)(A)-(F), (4)(C), (5)(B), (5)(F)-(G) Grade 2: (2)(A)-(B), (4)(A)-(D), (7)(A), (7)(C), (5)(A), (10)(C), (11)(A) Grade 3: (2)(A), (3)(D), (4)(A)-(K), (5)(B), (5)(D), (6)(C)-(D), (7)(B)-(C), (8)(B) Grade 4: (3)(A), (3)(E)-(F), (4)(A)-(F), (4)(H), (5)(D), (7)(E), (8)(B)-(C), (10)(B) Grade 5: (2)(A), (3)(B)-(L), (4)(B), (4)(E), (4)(G), (6)(B), (7), (10)(F). Grade 6: (3)(A)-(B), (3)(D)-(E), (3)(H), (5)(B), (7)(A), (8)(D), (9)(B), (13)(C), (14)(C) Grade 7: (3)(A)-(B), (4)(B)-(E), (5)(C), (6)(B)-(I), (9)(A)-(D), (11)(A)-(C), (13)(A)-(B), (13)(D)-(E) Geometry: (2)(A), (13)(A) Mathematical Models with Applications: (8)(A) Algebra II: (7)(A) Advanced Quantitative Reasoning: (2)(E) Precalculus: (5)(C), (5)(E) Statistics: (6)(C)-(D) Algebraic Reasoning: (2)(D), (5)(A)-(E)	Grade 6: (6)(B), (8)(C) Grade 8: (6)(A) Chemistry: (6)(C), (8)(B)-(E), (9)(A), (10)(C)-(D), (10)(H), (11)(C)-(D) Integrated Physics and Chemistry: (4)(A), (4)(D), Physics: (2)(J), (3)(E), (4)(A)-(D), (5)(B)-(C), (5)(F), (6)(A)-(D), (7)(B), (7)(E), (8)(C)-(D) Aquatic Science: (2)(I), (4)(B-C), (5)(A), (6)(B), (7)(A), (8)(A), (11)(A), (12)(A) Astronomy: (7)(B), (8)(B), (9)(C), (11)(C) Earth and Space Science: (2)(H), (5)(B), (7)(B), (10)(D) Environmental Systems: (2)(J), (7)(B)	Accounting II: (1)(B), (1)(E), (3)(C)-(D), (3)(F), (3)(I), (4)(C)-(G), (4)(I), (5)(B), (5)(D)-(F), (5)(I), (5)(K)-(P), (6)(D)(i)-(iii), (6)(E)(iii), (6)(E)(v)-(vi), (6)(G)(iii)-(iv), (6)(H), (6)(K)(i)-(iii), (6)(K)(vi)-(vii); Applied Mathematics for Technical Professionals: (2)(A), (2)(D), (2)(F)-(H), (3)(B)-(H), (4)(A), (4)(E)-(F), (5)(A)-(B), (5)(D), (6)(B); Digital Electronics: (7)(A); Entrepreneurship: (8)(C); Forestry and Woodland Ecosystems: (4)(A); Advanced Marketing: (16)(A), (16)(C), (20)(A); Basic Collision Repair and Refinishing: (3)(C); Collision Repair: (2)(D), (5)(D), (10)(K)-(M); Paint and Refinishing: (3)(C); Engineering Mathematics: (3)(A)-(D), (4)(A)-(L), (5)(A)-(B), (6)(A), (6)(C)-(D), (6)(G), (6)(I)-(L), (6)(N), (7)(A)-(B), (7)(G)-(I), (8)(A), (8)(D), (8)(G)-(H), (8)(L)-(S), (9)(A), (9)(D)-(F), (10)(A)-(D), (10)(F)-(H), (10)(J), (10)(M)-(N), (11)(B), (11)(D), (11)(F); Financial Mathematics: (3)(C), (3)(F), (3)(H)-(I), (4)(A)-(C), (4)(F)-(I), (5)(C)-(D), (6)(B), (7)(A)-(B), (7)(D), (7)(F)-(G), (8)(A)-(D), (9)(A)-(B), (10)(A)-(C), (10)(F), (11)(A)-(D), (12), (14), (15)(A), (17)(C), (17)(G); Manufacturing Engineering Technology II: (8)(B); Mathematical Applications in Agriculture, Food, and Natural Resources: (4)(A)-(F), (5)(F), (6)(A)-(B), (7)(A)-(C), (8)(A)-(B), (9)(A)-(B), (10)(A)-(B), (11)(A)-(C), (12)(A)-(C), (12)(E); Mathematics for Medical Professionals: (3)(A), (3)(C), (4)(D)-(F), (5)(C), (6)(F)-(G), (7)(A)-(D) ; Robotics II: (7)(A), (7)(C)-(D), (7)(G)-(I), (8)(E), (8)(G), (9)(B); Statistics and Business Decision Making: (10)(A), (11)(B), (12)-(14), (15)(A), (16)(D), (16)(F), (18)-(19), (20)(B)-(C), (21); Principles of Technology: (8)(B), (9)(B)-(C), (9)(G), (10)(B)-(C), (12)(C); Robotic II: (7)(H)-(I); Engineering Science: (7)(D), (7)(F), (8)(B)-(D), (9)(G), (10)(A), (10)(D), (10)(G)-(J), (11)(B), (12)(D), (14)(C), (14)(G)-(H), (16)(A)-(D); Biotechnology I: (3)(F), (11)(C); Biotechnology II: (14)(C); Diversified Manufacturing II: (9)(A); Metal Fabrication and Machining II: (3)(C), (8)(A); Introduction to Welding: (5)(A), (5)(E)-(F); Welding I: (3)(B), (3)(G)-(I); Welding II: (3)(A); Small Engine Technology I: (5)(D), (6)(A)(C)-(E); Small Engine Technology II: (5)(C), (7)(A)(E)-(G); Automotive Basics: (3)(C); Automotive Technology I: Maintenance and Light Repair: (2)(C); Aircraft Airframe Technology: (5)(A), (5)(F); Aircraft Powerplant Technology: (5)(B), (7)(D);	Discrete Mathematics for Computer Science: (2)(D), (4)(L)-(N), (6)(B), (6)(H)-(K), (6)(M) Robotics Programming and Design: (5)(B), (7)(I), (7)(L)-(M), (7)(R)

B. Number sense and number concepts [operations]				
I.B.1. Use estimation to check for errors and reasonableness of solutions. [Perform computations with real and complex numbers.]	[Kindergarten: (2)(I), (3)(A)-(C) Grade 1: (3)(A)-(F), (4)(C), (5)(B), (5)(F)-(G) Grade 2: (2)(A)-(B), (4)(A)-(D), (7)(A), (7)(C), (5)(A), (10)(C), (11)(A) Grade 3: (2)(A), (3)(D), (4)(A)-(K), (5)(B), (5)(D), (6)(C)-(D), (7)(B)-(C), (8)(B) Grade 4: (3)(A), (3)(E)-(F), (4)(A)-(F), (4)(H), (5)(D), (7)(E), (8)(B)-(C), (10)(B) Grade 5: (2)(A), (3)(B)-(L), (4)(B), (4)(E), (4)(G), (6)(B), (7), (10)(F), Grade 6: (3)(A)-(B), (3)(D)-(E), (3)(H), (5)(B), (7)(A), (8)(D), (9)(B), (13)(C), (14)(C) Grade 7: (3)(A)-(B), (4)(B)-(E), (5)(C), (6)(B)-(I), (9)(A)-(D), (11)(A)-(C), (13)(A)-(B), (13)(D)-(E) Geometry: (2)(A), (13)(A) Mathematical Models with Applications: (8)(A) Algebra: (7)(A) Advanced Quantitative Reasoning: (2)(E) Precalculus: (5)(C), (5)(E) Statistics: (6)(C)-(D) Algebraic Reasoning: (2)(D), (5)(A) -(E)] Kindergarten - Grade 12: (1)(B)-(C) Grade 2: (9)(E) Grade 3: (4)(B) Grade 4: (2)(D), (3)(F), (4)(G) Grade 5: (3)(A), (8)(A) Grade 8: (2)(B) Algebra I: (3)(G) Algebra II: (3)(D), (3)(G), (4)(G), (5)(E), (6)(J) Advanced Quantitative Reasoning: (2)(A), (2)(H) Statistics: (6)(H), (6)(J), (7)(C), (7)(E)-(F) Algebraic Reasoning: (7)(C)	[Grade 6: (6)(B), (8)(C) Grade 8: (5)(F), (6)(A) Aquatic Science: (2)(I) Chemistry: (2)(G), (6)(C)-(D), (8)(B)-(E), (9)(A)-(B), (10)(C)-(D), (10)(I), (11)(C)-(D) Earth and Space Science: (7)(B), (10)(D) Environmental Systems: (2)(J), (7)(B) Integrated Physics and Chemistry: (4)(A)-(B) Physics: (2)(L), (3)(F), (4)(D)-(E), (5)(B)-(C), (5)(F), (6)(A), (6)(C)-(D)]	[Accounting II: (1)(B), (1)(E), (3)(C)-(D), (3)(F), (3)(I), (4)(C)-(G), (4)(I), (5)(B), (5)(D)-(F), (5)(I), (5)(K)-(P), (6)(D)(i)-iii), (6)(E)(iii), (6)(E)(v)-vi), (6)(G)(iii)-iv), (6)(H), (6)(K)(i)-(iii), (6)(K)(vi)-(vii); Applied Mathematics for Technical Professionals: (2)(A), (2)(D), (2)(F)-(H), (3)(B)-(H), (4)(A), (4)(E)-(F), (5)(A)-(B), (5)(D), (6)(B); Digital Electronics: (7)(A); Entrepreneurship: (8)(C); Forestry and Woodland Ecosystems: (4)(A); Advanced Marketing: (16)(A), (16)(C), (20)(A); Basic Collision Repair and Refinishing: (3)(C); Collision Repair: (2)(D), (5)(D), (10)(K)-(M); Paint and Refinishing: (3)(C); Engineering Mathematics: (3)(A)-(D), (4)(A)-(L), (5)(A)-(B), (6)(A), (6)(C)-(D), (6)(G), (6)(I)-(L), (6)(N), (7)(A)-(B), (7)(G)-(I), (8)(A), (8)(D), (8)(G)-(H), (9)(A)-(B), (9)(D)-(F), (10)(A)-(D), (10)(F)-(H), (10)(J), (10)(M)-(N), (11)(B), (11)(D), (11)(F); Financial Mathematics: (3)(C), (3)(F), (3)(H)-(I), (4)(A)-(C), (4)(F)-(I), (5)(C)-(D), (6)(B), (7)(A)-(B), (7)(D), (7)(F)-(G), (8)(A)-(D), (8)(F), (9)(A)-(B), (10)(A)-(C), (10)(E), (11)(A)-(C), (12)(A)-(C), (12), (14), (15)(A), (17)(C), (17)(G); Manufacturing Engineering Technology II: (8)(B); Mathematical Applications in Agriculture, Food, and Natural Resources: (4)(A)-(F), (5)(F), (6)(A)-(B), (7)(A)-(C), (8)(A)-(B), (9)(A)-(B), (10)(A)-(B), (11)(A)-(C), (12)(A)-(C), (12)(E); Mathematics for Medical Professionals: (3)(A), (3)(C), (4)(D)-(F), (5)(C), (6)(F)-(G), (7)(A) -(D) ; Robotics II: (7)(A), (7)(C) -(D), (7)(G) -(I), (8)(E), (8)(G), (9)(B); Statistics and Business Decision Making: (10)(A), (11)(B), (12)-(14), (15)(A), (16)(D), (16)(F), (18)-(19), (20)(B)-(C), (21); Principles of Technology: (8)(B), (9)(B)-(C), (9)(G), (10)(B)-(C), (12)(C); Robotic II: (7)(H) -(I); Engineering Science: (7)(D), (7)(F), (8)(B)-(D), (9)(G), (10)(A), (10)(D), (10)(G)-(J), (11)(B), (12)(D), (14)(C), (14)(E)-(F), (15)(A)-(H), (16)(A)-(D); Biotechnology I: (3)(F), (11)(C); Biotechnology II: (14)(C); Diversified Manufacturing II: (9)(A); Metal Fabrication and Machining II: (3)(C), (8)(A); Introduction to Welding: (5)(A), (5)(E)-(F); Welding I: (3)(B), (3)(G)-(I); Welding II: (3)(A); Small Engine Technology I: (5)(D), (6)(A)(C)-(E); Small Engine Technology II: (5)(C), (7)(A)(E)-(G); Automotive Basics: (3)(C); Automotive Technology I: Maintenance and Light Repair: (2)(C); Aircraft Airframe Technology: (5)(A), (5)(F); Aircraft Powerplant Technology: (5)(B), (7)(D);] Accounting II: (2)(B)-(C); Applied Mathematics for Technical Professionals: (1)(B)-(C), (2)(D), (5)(F); Digital Electronics: (2)(B)-(C); Engineering Mathematics: (2)(B)-(C), (6)(H), (11)(A), (11)(E)-(F); Financial Mathematics: (2)(B)-(C), (10)(B)-(C); Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(B)-(C); Mathematics for Medical Professionals: (2)(B)-(C), (3)(E); Statistics and Business Decision Making: (2)(B)-(C); Practicum in Marketing: (6)(E); Principles of Technology: (3H); Engineering Design and Presentation I: (8)(B); Engineering Design and Presentation II: (8)(B); Engineering Design and Problem Solving: (3)(F), (5)(I), (11)(A)-(F); Engineering Science: (3)(F); Biotechnology I: (3)(F); Biotechnology II: (3)(F); Scientific Research and Design: (3)(F); Metal Fabrication and Machining II: (3)(C); Metal Fabrication and Machining II: (8)(A); Introduction to Welding: (5)(A); Welding I: (3)(B); Welding II: (3)(A), (3)(G); Dollars and Sense: (3)(C), (3)(L)	[Discrete Mathematics for Computer Science: (2)(D), (4)(L)-(N), (6)(B), (6)(H)-(K), (6)(M) Robotics Programming and Design: (5)(B), (7)(I), (7)(L)-(M), (7)(R)] Robotics Programming and Design: (1)(B)-(C)
I.B.2. Interpret the relationships between the different representations of numbers.	Kindergarten: (2)(A), (2)(C)-(D), (2)(I) Grade 1: (2)(A)-(C) Grade 2: (2)(A), (2)(B), (2)(E)-(F), (3)(A), (3)(C)-(D), Grade 3: (2)(A)-(B), (3)(A)-(G) Grade 4: (2)(A)-(B), (2)(E), (2)(G)-(H), (3)(A)-(C), (3)(G) Grade 5: (2)(A), (4)(F) Grade 6: (7)(A) Grade 8:(2)(C) Algebra: (11)(A)	Grades 1&2: (4)(A) Grade 3-5: (4) Astronomy: (6)(A-E) Biology: (12)(C) Earth and Space Systems: (2)(H)	Applied Mathematics for Technical Professionals: (2)E)-(F), (2)(D), (5)(F); Mathematics for Medical Professionals: (3)(D), 3(F)	
C. Systems of measurement [Number sense and number concepts]				
I.C.1. Select or use the appropriate type of method, unit, and tool for the attribute being measured. [Use estimation to check for errors and reasonableness of solutions.]	[Kindergarten - Grade 12: (1)(B)-(C); Grade 2: (9)(E); Grade 3: (4)(B); Grade 4: (2)(D), (3)(F), (4)(G); Grade 5: (3)(A), (8)(A); Grade 8: (2)(B) Algebra I: (3)(G); Algebra II: (3)(D), (3)(G), (4)(G), (5)(E), (6)(J); Advanced Quantitative Reasoning: (2)(A), (2)(H); Statistics: (6)(H), (6)(J), (7)(C), (7)(E) -(F); Algebraic Reasoning: (7)(C)] Kindergarten: (7)(A) Grade 1: (7)(A)-(E) Grade 2: (9)(A)-(B), (9)(D), (9)(F)-(G) Grade 3: (7)(E) Grade 4: (7)(B)-(C), (8)(A) Grade 5: (6)(A)-(B) Grade 8: (10)(D) Geometry: (10)(B), (12)(D) Advanced Quantitative Reasoning: (2)(A)	Kindergarten – Grade 8: (4)(A) Grade 6 -Grade 8: (4)(B) Astronomy: (2)(E) Biology: (2)(E-F) Chemistry: (1)(A), (2)(E) Earth and Space Systems: (2)(E-F) Environmental Systems: (2)(E-F) Integrated Physics and Chemistry: (1)(A), (2)(B) Physics: (2)(D-F)	[Accounting II: (2)(B)-(C); Applied Mathematics for Technical Professionals: (1)(B)-(C), (2)(D), (5)(F); Digital Electronics: (2)(B)-(C); Engineering Mathematics: (2)(B)-(C), (6)(H), (11)(A), (11)(E)-(F); Financial Mathematics: (2)(B)-(C), (10)(B)-(C); Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(B)-(C); Mathematics for Medical Professionals: (2)(B)-(C), (3)(E); Statistics and Business Decision Making: (2)(B)-(C); Practicum in Marketing: (6)(E); Principles of Technology: (3H); Engineering Design and Presentation I: (8)(B); Engineering Design and Presentation II: (8)(B); Engineering Design and Problem Solving: (3)(F), (5)(I), (11)(A)-(F); Engineering Science: (3)(F); Biotechnology I: (3)(F); Biotechnology II: (3)(F); Scientific Research and Design: (3)(F); Metal Fabrication and Machining II: (3)(C); Metal Fabrication and Machining II: (8)(A); Introduction to Welding: (5)(A); Welding I: (3)(B); Welding II: (3)(A), (3)(G); Dollars and Sense: (3)(C), (3)(L)] Applied Mathematics for Technical Professionals: (4)(A)-(B) , (4)(D)-(F); Engineering Mathematics: (3)(A)-(D), (4)(A)-(M), (5)(A)-(B), (6)(A), (6)(C)-(S), (7)(F)-(G), (8)(A)-(S), (9)(A)-(H), (10)(B)-(N), (11)(A)-(F); Mathematical Applications in Agriculture, Food, and Natural Resources: (4)(B), (4)(E)-(F), (5)(F), (7)(A), (7)(C), (8)(A)-(B), (9)(B), (10)(A)-(B), (11)(A)-(C), (12)(A)-(C), (12)(E); Mathematics for Medical Professionals: (5)(A)-(F); Robotics II: (7)(F)-(K), (8)(G); Forestry and Woodland Ecosystems: (4)(A)(D); (6)(D); Principles of Technology: (3)(H), (5)(F); AC/DC Electronics: (6)(F)-(G); Engineering Design and Presentation II: (5)(F); Engineering Design and Problem Solving: (5)(J); Principles of Manufacturing: (3)(E); Diversified Manufacturing I: (10)(E); Diversified Manufacturing II: (11)(E); Precision Metal Manufacturing I: (3)(B), (3)(D)-(E); Small Engine Technology I: (9)(G)-(H); Small Engine Technology II: (10)(H)-(I)	Robotics Programming and Design: (1)(B)-(C) Robotics Programming and Design: (5)(A)-(B), (7)(G)-(I), (7)(L)-(P)

I.C.2. Convert units within and between systems of measurement.	Grade 4: (8)(B) Grade 5: (7) Grade 6: (4)(H) Grade 7: (4)(E) Geometry: (12)(D)	Astronomy: (6)(E) Chemistry: (2)(G) Environmental Systems: (2)(F) Physics: (3)(E)	Applied Mathematics for Technical Professionals: (4)(A), (4)(E) Engineering Mathematics: (3)(A); Mathematical Applications in Agriculture, Food, and Natural Resources: (4)(B), (5)(F), (7)(A), (12)(A); Mathematics for Medical Professionals: (5)(C) ; HVAC Tech I: (3)(A), (3)(C); Precision Metal Manufacturing I: (3)(B); Introduction to Welding: (5)(G); Welding I: (3)(J)	

II. Algebraic Reasoning

A. Identifying expressions [Expressions] and equations

II.A.1. Explain the difference [and differentiate] between expressions and equations. [using words such as "solve," "evaluate," and "simplify."]	Grade 1: (5)(E) Grade 5: (4)(F) Grade 6: (7)(B), (10)(A)-(B) Grade 8: (5)(E), (7)(A)-(D), (8)(C), (12)(A)-(B), (12)(D) Algebra I: (5)(A)-(C), (8)(A), (10)(A)-(D), (11)(A)-(B), (12)(B), (12)(E) Geometry: (9)(A)-(B), (11)(A)-(D), (12)(B)-(C) Algebra II: (3)(B)-(C), (3)(F), (4)(F), (4)(H), (5)(D), (6)(B), (6)(E)-(F), (6)(I), (6)(L), (7)(A)-(H) Precalculus: (5)(A), (5)(C)-(E), (5)(G)-(N) Advanced Quantitative Reasoning: (2)(C)-(E) Algebraic Reasoning: (4)(A)-(C), (5)(A)-(E), (6)(B)-(C)			

B. Manipulating expressions

II.B.1. Recognize and use algebraic [(field)] properties, concepts, [procedures], and algorithms to combine, transform, and evaluate expressions (e.g., polynomials, radicals, rational expressions).	Grade 5: (4)(E)-(F) Grade 6: (7)(A), (7)(C)-(D) Algebra I: (3)(B), (3)(E), (5)(A), (6)(B)-(C), (7)(B)-(C), (10)(A)-(F), (11)(A)-(B), (12)(B), (12)(E) Algebra II: (2)(B)-(D), (4)(D), (5)(C), (7)(A)-(G) Precalculus: (5)(A), (5)(C), (5)(E)-(G), (5)(M) Advanced Quantitative Reasoning: (2)(F) Algebraic Reasoning: (3)(D)-(F), (4)(A)-(C), (5)(A)-(E)	Physics: (3)(EE)	Digital Electronics: (7)(M) Mathematical Applications in Agriculture, Food, and Natural Resources: (5)(F), (6)(A)-(B), (7)(A)-(C), (8)(A)-(B), (9)(A)-(B), (10)(A)-(B), (11)(A)-(C), (12)(A)-(C), (12)(E) Mathematics for Medical Professionals: (4)(E)	

C. Solving equations, inequalities, and systems of equations and inequalities

II.C.1. Describe and interpret solution sets of equalities and inequalities. [Recognize and use algebraic (field) properties, concepts, procedures, and algorithms to solve equations, inequalities, and systems of linear equations.]	[Grade 6: (5)(A), (10)(A); Grade 8: (8)(C); Algebra I: (5)(A)-(C), (8)(A), (12)(E); Algebra II: (3)(B)-(D), (3)(F), (4)(F)-(H), (5)(D)-(E), (6)(B), (6)(E)-(F), (6)(I), (7)(A)-(H); Precalculus: (5)(H)-(N); Advanced Quantitative Reasoning: (2)(C)-(E); Algebraic Reasoning: (5)(D)-(E), (6)(B)-(C)] Grade 6: (9)(B), (10)(A) Grade 7:(10)(B), (11)(B) Grade 8: 8(9) Algebra: (3)(F), (3)(G), (3)(H) Algebra 2: (3)(D), (3)(G), (4)(G)	[Chemistry (8)(D)] [Physics: (2)(L), (3)(F)]	[Applied Mathematics for Technical Professionals: (2)(C)-(D) Mathematical Applications in Agriculture, Food, and Natural Resources: (4)(A)-(F), (5)(F), (6)(A)-(B), (7)(A)-(C), (8)(A)-(B), (8)(A)-(B), (10)(A)-(B), (11)(A)-(C), (12)(A)-(C), (12)(E); Mathematics for Medical Professionals: (4)(D)-(E) Construction Management II: (18)(B); Principles of Technology: (3)(J), (3)(L), (4)(E), (5)(H), (5)(K), (8)(A); Biotechnology II: (3)(I), (4)(G), (10)(A); Scientific Research and Design: (3)(I), (4)(G), (10)(A)] Applied Mathematics for Technical Professionals: (2)(C)-(D) Mathematical Applications in Agriculture, Food, and Natural Resources: (5)(F), (6)(A)-(B), (7)(A)-(C), (8)(A)-(B), (8)(A)-(B), (10)(A)-(B), (11)(A)-(C), (12)(A)-(C), (12)(E) Mathematics for Medical Professionals: (4)(D)-(E)	
II.C.2. Explain the difference between the solution set of an equation and the solution set of an inequality.	Grade 6: (10)(B) Grade 7: (11)(A) Algebra I: (3)(F)-(H), (5)(A)-(C), (8)(A) Algebra II: (3)(B)-(C), (3)(F)-(G), (4)(F), (4)(H), (6)(E)-(F), (6)(I) Precalculus: (5)(J)-(L)			
II.C.3. Recognize and use algebraic properties, concepts, and algorithms to solve equations, inequalities, and systems of linear equations and inequalities.	Grade 6: (5)(A), (10)(A) Grade 8: (8)(C) Algebra I: (5)(A)-(C), (8)(A), (12)(E) Algebra II: (3)(B)-(D), (3)(F), (4)(F)-(H), (5)(D)-(E), (6)(B), (6)(E)-(F), (6)(I), (7)(A)-(H) Precalculus: (5)(H)-(N) Advanced Quantitative Reasoning: (2)(C)-(E) Algebraic Reasoning: (5)(D)-(E), (6)(B)-(C)	Chemistry (8)(E) Physics: (2)(J), (3)(E)	Applied Mathematics for Technical Professionals: (2)(C)-(D); Mathematical Applications in Agriculture, Food, and Natural Resources: (4)(A)-(F), (5)(F), (6)(A)-(B), (7)(A)-(C), (8)(A)-(B), (8)(A)-(B), (10)(A)-(B), (11)(A)-(C), (12)(A)-(C), (12)(E); Mathematics for Medical Professionals: (4)(D)-(E); Construction Management II: (18)(B); Principles of Technology: (3)(J), (3)(L), (4)(E), (5)(H), (5)(K), (8)(A); Biotechnology II: (3)(I), (4)(G), (10)(A); Scientific Research and Design: (3)(I), (4)(G), (10)(A)	

II.D.1. Interpret multiple representations of equations, inequalities, and relationships.	Kindergarten - Grade 12: (1)(D) Grade 4: (5)(B) Grade 5: (4)(B)-(D) Grade 6: (4)(A), (8)(B)-(C), (9)(A) Grade 7: (4)(A)-(C), (7) Grade 8: (5)(F), (5)(H), (6)(A)-(C), (8)(B) Algebra I: (2)(B)-(I), (3)(A)-(C), (7)(A)-(B) Algebra II: (2)(A), (2)(C), (4)(B) Precalculus: (2)(H)-(I), (4)(A)-(C), (4)(J) Statistics: (7)(A)-(B) Algebraic Reasoning: (2)(A)-(D), (3)(A)-(F), (6)(B)-(C), (7)(D)-(E)	Grade 6: (2)(D), (8)(D) Grade 7: (2)(D) Grade 8: (2)(D), (6)(A), (6)(C) Chemistry: (2)(H), (11)(C) Physics: (2)(H-J), (4)(B-C)	Accounting II: (2)(D); Applied Mathematics for Technical Professionals: (1)(D), (6)(A), (6)(D), (7)(D); Digital Electronics: (2)(D); Engineering Mathematics: (2)(D), (3)(B), (4)(C), (4)(G), (11)(C)-(D); Financial Mathematics: (2)(D); Manufacturing Engineering Technology II: (2)(D); Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(D), (4)(F), (5)(F), (6)(B), (7)(B), (8)(A), (9)(A), (10)(A), (11)(B), (12)(B); Mathematics for Medical Professionals: (2)(D), (4)(A)-(C); Robotics II: (2)(D); Statistics and Business Decision Making: (2)(D); Entrepreneurship (8)(D); Principles of Technology: (3)(J), (3)(L), (4)(E), (5)(H), (5)(K), (8)(A); Biotechnology II: (3)(I), (4)(G), (10)(A); Scientific Research and Design: (3)(I), (4)(G), (10)(A)	Robotics Programming and Design: (1)(D)
II.D.2. Convert [Translate] among multiple representations of equations, inequalities, and relationships.	Kindergarten - Grade 12: (1)(D) Grade 6: (6)(B)-(C) Grade 7: (4)(A), (7) Grade 8: (5)(A)-(B), (5)(I), (8)(A)-(C), (9) Algebra I: (2)(B)-(I), (3)(A)-(C), (6)(B), (12)(C)-(D) Algebra II: (2)(A)-(B), (3)(A), (3)(E), (5)(B), (6)(D), (6)(H), (6)(L), (8)(B), Precalculus: (3)(A)-(B), (3)(E), (3)(H)-(I), (4)(I), (5)(D), (5)(F)-(G) Algebraic Reasoning: (2)(C)-(D)	Physics: (2)(J) [(2)(L)] , (3)(E) [(3)(F)]	Accounting II: (2)(D); Applied Mathematics for Technical Professionals: (1)(D), (6)(A); Digital Electronics: (2)(D); Engineering Mathematics: (2)(D); Financial Mathematics: (2)(D); Manufacturing Engineering Technology II: (2)(D); Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(D); Mathematics for Medical Professionals: (2)(D); Robotics II: (2)(D); Statistics and Business Decision Making: Principles of Technology: (3)(J), (3)(L), (4)(E), (5)(H), (5)(K), (8)(A), Biotechnology II: (3)(I), (4)(G), (10)(A); Scientific Research and Design: (3)(I), (4)(G), (10)(A)	Robotics Programming and Design: (1)(D)

III. Geometric and Spatial Reasoning

A. Figures and their properties

III.A.1. Recognize characteristics and dimensional changes of two- and three- dimensional figures. [Identify and represent the features of plane and space figures.]	Kindergarten: (6)(A)-(F) Grade 1: (6)(A)-(H) Grade 2: (8)(A)-(E) Grade 3: (6)(A)-(B) Grade 4: (6)(A)-(D) Grade 5: (5) Grade 6: (8)(D) Geometry: (10)(A), (12)(E) Precalculus: (3)(F)-(I)	Integrated Physics and Chemistry: (6)(A)-(B) Chemistry 7(E) Physics: (3)(E) [(3)(F)]	Applied Mathematics for Technical Professionals: (3)(A), (3)(I)-(K), (7)(A)-(C); Robotics II: (7)(B), (7)(I)-(K); Precision Metal Manufacturing I: (3)(D); Precision Metal Manufacturing II: (6)(B), (9)(K), (10)(F), (10)(K); Precision Metal Manufacturing II Lab: (5)(K); Welding I: (3)(L), (5)(B); Small Engine Technology I: (6)(C), (7)(B); Small Engine Technology II: (7)(E), (8)(B);	Robotics Programming and Design: (4)(B), (4)(D), (5)(A)-(B), (7)(G)-(I), (7)(L), (7)(N)-(O)
III.A.2. Form and validate [Make, test, and use] conjectures about one-, two-, and three-dimensional figures and their properties.	Kindergarten: (6)(E), (7)(A)-(B) Grade 6: (8)(B)-(D) Grade 7: (5)(A)-(B), (8)(A)-(D) [(C)] Grade 8: (6)(B), (8)(D) Geometry: (4)(B)-(C), (5)(A), (5)(D), (6)(A)-(B), (6)(D)-(E), (7)(A)-(B), (8)(A)-(B), (9)(A)-(B), (10)(B), (12)(A)-(E) Precalculus: (4)(A)-(C), (4)(J) Mathematical Models with Applications: (6)(A), (7)(B), (7)(D)	Grade 8: (8)(A)-(B) Astronomy: (8)(A) Chemistry: (7)(E) Earth and Space Science: (5)(C), (6)(C) [(14)(A)] Integrated Physics and Chemistry: (6)(B) Physics: (4)(B)-(D) [(F)]	Engineering Mathematics: (3)(C), (4)(D), (4)(G), (6)(A), (6)(K)-(O), (8)(D); Mathematical Applications in Agriculture, Food, and Natural Resources: (7)(C), (8)(A)-(B), (9)(B), (10)(A)-(B), (11)(A)-(C), (12)(C), (12)(E); Robotics II: (7)(B), (7)(I)-(K), (9)(A)-(C); Principles of Technology: (8)(A); Precision Metal Manufacturing II: (12)(A)-(C); Precision Metal Manufacturing II Lab: (7)(A)-(C)	Robotics Programming and Design: (4)(B), (4)(D), (5)(A)-(B), (7)(G)-(I), (7)(J), (7)(L), (7)(N)-(O), (7)(Q), (7)(S)
III.A.3. Recognize and apply right triangle relationships including basic trigonometry.	Grade 8: (6)(C), (7)(C)-(D) Geometry: (7)(A)-(B), (9)(A)-(B) Precalculus: (2)(O)-(P), (4)(E)-(H) Mathematical Models with Applications: (6)(C)-(D), (7)(B), (7)(D) Advanced Quantitative Reasoning: (2)(D)	Physics: (4)(D)	Applied Mathematics for Technical Professionals: (3)(C)-(D), (3)(F)-(G); Engineering Mathematics: (4)(C), (5)(A)-(B); Mathematical Applications in Agriculture, Food, and Natural Resources: (7)(C), (8)(B) ;; Masonry Technology II: (2)(D); Precision Metal Manufacturing II: (11)(A)-(C); Precision Metal Manufacturing II Lab: (6)(A)-(C); Welding I: (3)(K); Welding II: (3)(F)	

B. Transformations and symmetry

III.B.1. Identify [and apply] transformations and symmetries of [te] figures.	Grade 4: (6)(B) Grade 8: (3)(A)-(D) [(C)] , (10)(A)-(D) Geometry: (3)(A)-(D) [(C)] , (6)(C), (7)(A)-(B), (8)(A)-(B), (9)(A)-(B), (10)(B) Mathematical Models with Applications: (6)(A)-(B), (7)(B), (7)(D) Precalculus: (2)(D)	[Astronomy: (8)(A)] [Earth and Space Science: (14)(A)] [Physics: (7)(E)]	Robotics II: (7)(H)-(K)	Robotics Programming and Design: (4)(B), (5)(A)-(B), (7)(L), (7)(O)-(P)
III.B.2. Use transformations to investigate congruence, similarity, and symmetries of figures. [Identify the symmetries of a plane figure.]	[Grade 4: (6)(B)] [Geometry: (3)(D)] [Precalculus: (2)(D)] Grade 7: (5)(A) Grade 8: (3)(A)-(C), (4)(A), (10)(A)-(D) Geometry: (3)(A)-(C), (6)(C), (7)(A)-(B), (8)(A)-(B), (9)(A)-(B), (10)(B) Mathematical Models with Applications: (6)(A)-(B), (7)(B), (7)(D) Advanced Quantitative Reasoning: (2)(D), (2)(F)			

[III.B.3. Use congruence transformations and dilations to investigate congruence, similarity, and symmetries of plane figures.]	[Grade 8: (3)(A)-(C), (4)(A), (10)(A)-(D)] [Geometry: (3)(A)-(C), (6)(C), (7)(A)-(B), (8)(A)-(B), (9)(A)-(B), (10)(B)] [Mathematical Models with Applications: (6)(A)-(B), (7)(B), (7)(D)] [Advanced Quantitative Reasoning: (2)(D), (2)(F)]			
C. Connections between geometry and other mathematical content strands				
III.C.1. Make connections between geometry and algebraic equations. [algebra.]	Grade 4: (5)(C), (7)(E) Grade 5: (4)(A), (4)(G), (6)(A)-(B), (8) (A)-(C) Grade 6: (8)(A), (8)(C), (10)(A) Grade 7: (8)(A)-(C), (11)(C) Grade 8: (3)(B)-(C), (4)(A), (8)(D), (10)(A)-(D) Geometry: (2)(A)-(C), (3)(A)-(D), (7)(A)-(B), (8)(B), (10)(B), (12)(A)-(E) Precalculus: (3)(H)-(I), (4)(A)-(C), (4)(J) Mathematical Models with Applications: (6)(B)-(D), (7)(A)-(D) Advanced Quantitative Reasoning: (2)(C)-(D), (2)(F)	Physics: (3)(E) [(3)(F)] , 4(B)-(D) [(F).]	Applied Mathematics for Technical Professionals: (3)(A)-(H), (4)(D), (4)(F); Engineering Mathematics: (3)(A)-(D), (4)(A)-(M), (5)(A)-(B), (6)(A), (6)(C)-(H), (6)(J)-(O), (8)(A)-(S), (9)(A)-(H), (10)(B)-(N), (11)(A)-(F); Mathematical Applications in Agriculture, Food, and Natural Resources: (4)(E)-(F), (7)(A), (7)(C), (8)(A)-(B), (9)(B), (10)(A)-(B), (11)(A)-(C), (12)(A), (12)(C), (12)(E); Mathematics for Medical Professionals: (7)(A)-(D); Robotics II: (7)(A)-(E), (7)(G)-(K), (11)(D), (12)(D)-(E); Principles of Technology: (3)(J), (3)(L), (4)(E), (5)(H), (5)(K), (8)(A); Biotechnology II: (3)(I), (4)(G), (10)(A); Scientific Research and Design: (3)(I), (4)(G), (10)(A)	Robotics Programming and Design: (4)(B), (5)(A)-(B), (7)(B), (7)(L), (7)(O)-(P)
III.C.2. Make connections between geometry, statistics, and probability.	Grade 8: (11)(A) Algebra I: (4)(C), (8)(B) Algebra II: (8)(A)-(C) Geometry: (13)(B)		Applied Mathematics for Technical Professionals: (6)(C); Mathematical Applications in Agriculture, Food, and Natural Resources: (8)(C), (10)(C), (11)(D), (12)(D); Mathematics for Medical Professionals: (4)(A); Statistics and Business Decision Making: (10)(C), (12)-(13), (16)(G)-(H); Engineering Design and Problem Solving: (3)(G); Engineering Science: (3)(G); Biotechnology I: (3)(H), (13)(B); Biotechnology II: (3)(G), (8)(G), (10)(B), (13)(B); Scientific Research and Design: (3)(G), (8)(G), (10)(B)	
[III.C.3. Make connections between geometry and measurement.]	[Grade 4: (7)(E), (8)(C)] [Grade 5: (6)(A)-(B)] [Grade 6: (8)(B)] [Grade 7: (8)(A)-(C)] [Grade 8: (7)(B)-(D), (8)(D), (10)(D)] [Geometry: (7)(B), (8)(A)-(B), (9)(A)-(B), (10)(B), (12)(B)-(C)] [Advanced Quantitative Reasoning: (2)(A), (2)(D)]		[Applied Mathematics for Technical Professionals: (4)(A)-(F); Engineering Mathematics: (3)(A)-(D), (4)(A)-(M), (5)(A)-(B), (6)(A), (6)(C)-(H), (6)(J)-(O), (7)(G)-(H), (8)(A)-(S), (9)(A)-(H), (10)(A)-(N), (11)(A)-(F); Mathematical Applications in Agriculture, Food, and Natural Resources: (4)(B), (4)(E), (7)(A)-(C), (8)(A)-(B), (9)(B), (10)(A)-(B), (11)(A)-(C), (12)(A), (12)(C), (12)(E); Mathematics for Medical Professionals: (7)(A)-(D); Robotics II: (7)(A)-(E), (7)(G)-(K), (9)(B)-(C), (11)(D), (12)(D)-(F); HVAC Technology I: (3)(B); Principles of Technology: (3)(J), (3)(L), (4)(E), (5)(H), (5)(K), (8)(A); Biotechnology II: (3)(I), (4)(G), (10)(A); Scientific Research and Design: (3)(I), (4)(G), (10)(A); Small Engine Technology I: (6)(C); Small Engine Technology II: (7)(E)]	[Robotics Programming and Design: (4)(B), (5)(A)-(B), (7)(B), (7)(J), (7)(L), (7)(O)-(P), (7)(S)]
D. Measurements involving geometry and algebra [Logic and reasoning in geometry]				
III.D.1. Find the perimeter and area of two-dimensional figures. [Make and validate geometric conjectures.]	[Kindergarten: (6)(E); Grade 6: (8)(A); Grade 8: (6)(B), (8)(D); Geometry: (4)(B)-(C), (5)(A), (5)(D), (6)(A)-(B), (6)(D)-(E), (7)(A)-(B), (8)(A)-(B), (9)(A)-(B), (12)(A)-(D); Mathematical Models with Applications: (6)(A)] Grade 2: (9)(F) Grade 3: (6)(C)-(E), (7)(B) Grade 4: (5)(C)-(D) Grade 5: (4)(H) Grade 6: (8)(D) Grade 7: (9)(B)-(C) Grade 8: (10)(D) Geometry: (10)(B), (11)(A)-(B), (12)(B)-(C) Precalculus: (4)(A)-(C)	[Astronomy: (8)(A)] [Earth and Space Science: (14)(A)]	Applied Mathematics for Technical Professionals: (3)(B), (3)(D)-(E), (3)(H) Engineering Mathematics: (6)(A), (10)(D), (10)(G), (10)(J), (10)(M)-(N) Mathematical Applications in Agriculture, Food, and Natural Resources: (4)(B), (4)(E), (5)(F), (7)(C), (9)(B), (10)(A), (11)(A)-(C), (12)(A), (12)(C), (12)(E); Agricultural Mechanics and Metal Technology: (11)(E); Engineering Science: (11)(B); Diversified Manufacturing II: (2)(C); Metal Fabrication and Machining I: (2)(C), (7)(A); Metal Fabrication and Machining II: (3)(E), (8)(B); Precision Metal Manufacturing I: (3)(B), (3)(E); Welding II: (3)(D)	
III.D.2. Determine the surface area and volume of three-dimensional figures. [Understand that Euclidean geometry is an axiomatic system.]	[Grade 4: (6)(A); Grade 6: (8)(A); Geometry: (4)(A), (4)(D), (5)(A)-(D), (6)(A)-(B), (6)(D)-(E), (7)(A), (12)(A)] Grade 5: (4)(H), (6)(A)-(B) Grade 7: (9)(A), (9)(D) Grade 8: (6)(A)-(B), (7)(A)-(B), (10)(D) Geometry: (10)(B), (11)(C)-(D) Mathematical Models with Applications: (6)(B), (7)(D)		Applied Mathematics for Technical Professionals: (3)(B), (3)(E), (3)(H); Engineering Mathematics: (6)(K)-(O), (8)(C)-(D), (8)(G); Mathematical Applications in Agriculture, Food, and Natural Resources: (4)(B), (4)(E), (5)(F), (7)(C), (8)(A), (9)(B), (10)(B), (11)(A)-(C), (12)(C), (12)(E); Mathematics for Medical Professionals: (7)(A)-(B); Agricultural Mechanics and Metal Technology: (11)(E); Engineering Science: (11)(B); Diversified Manufacturing II: (2)(C); Diversified Manufacturing II: (2)(C); Manufacturing Engineering Technology I: (8)(B); Metal Fabrication and Machining I: (2)(C), (7)(A); Metal Fabrication and Machining II: (3)(E), (8)(B); Precision Metal Manufacturing I: (3)(B), (3)(E); Welding II: (3)(D); Small Engine Technology I: (6)(C); Small Engine Technology II: (7)(D)-(E)	

III.D.3. Determine indirect measurements of geometric figures using a variety of methods.	Grade 4: (7)(E), (8)(C) Grade 5: (6)(A)-(B) Grade 6: (5)(A), (8)(A), (8)(B) Grade 7: (5)(A), (5)(C), (8)(A)-(C) Grade 8: (3)(A), (6)(C), (7)(B)-(D), (8)(D), (10)(D) Geometry: (5)(A), (5)(D), (7)(B), (8)(A)-(B), (9)(A)-(B), (10)(B), (12)(B)-(C) Precalculus: (4)(E)-(I), (4)(K) Mathematical Models with Applications: (6)(C)-(D), (7)(A) Advanced Quantitative Reasoning: (2)(A), (2)(D)	Astronomy: (9)(B)	Applied Mathematics for Technical Professionals: (3)(G)-(H), (4)(A)-(F); Engineering Mathematics: (3)(A)-(D), (4)(A)-(M), (5)(A)-(B), (6)(A), (6)(C)-(H), (6)(J)-(O), (7)(G)-(H), (8)(A)-(S), (9)(A)-(H), (10)(A)-(N), (11)(A)-(F); Mathematical Applications in Agriculture, Food, and Natural Resources: (4)(B), (4)(E), (7)(A)-(C), (8)(A)-(B), (9)(B), (10)(A)-(B), (11)(A)-(C), (12)(A), (12)(C), (12)(E); Mathematics for Medical Professionals: (7)(A)-(D); Robotics II: (7)(A)-(E), (7)(G)-(K), (9)(B)-(C), (11)(D), (12)(D)-(F); HVAC Technology I: (3)(B); Principles of Technology: (3)(J), (3)(L), (4)(E), (5)(H), (5)(K), (8)(A); Biotechnology II: (3)(I), (4)(G), (10)(A); Scientific Research and Design: (3)(I), (4)(G), (10)(A); Small Engine Technology I: (6)(C); Small Engine Technology II: (7)(E); Masonry Technology II: (2)(D); Diversified Manufacturing I: (2)(C)	Robotics Programming and Design: (4)(B), (5)(A)-(B), (7)(B), (7)(J), (7)(L), (7)(O)-(P), (7)(S)

[IV. Measurement Reasoning]

[A. Measurement involving physical and natural attributes]

[IV.A.1. Select or use the appropriate type of unit for the attribute being measured.]	[Kindergarten: (7)(A)] [Grade 1: (7)(A)-(E)] [Grade 2: (9)(A)-(B), (9)(D), (9)(F)-(G)] [Grade 3: (7)(E)] [Grade 4: (7)(B)-(C), (8)(A)] [Grade 5: (6)(A)-(B)] [Grade 8: (10)(D)] [Geometry: (10)(B), (12)(D)] [Advanced Quantitative Reasoning: (2)(A)]	[Integrated Physics and Chemistry: (2)(C)]	[Applied Mathematics for Technical Professionals: (4)(A)-(B) , (4)(D)-(F); Engineering Mathematics: (3)(A)-(D), (4)(A)-(M), (5)(A)-(B), (6)(A), (6)(C)-(H), (6)(J)-(O), (7)(F)-(G), (8)(A)-(S), (9)(A)-(H), (10)(B)-(N), (11)(A)-(F); Mathematical Applications in Agriculture, Food, and Natural Resources: (4)(B), (4)(E)-(F), (5)(F), (7)(A), (7)(C), (8)(A)-(B), (9)(B), (10)(A)-(B), (11)(A)-(C), (12)(A)-(C), (12)(E); Mathematics for Medical Professionals: (5)(A)-(F); Robotics II: (7)(F)-(K), (8)(G); Forestry and Woodland Ecosystems: (4)(A)(D); (6)(D); Principles of Technology: (3)(H), (5)(F); AC/DC Electronics: (6)(F)-(G); Engineering Design and Presentation II: (5)(F); Engineering Design and Problem Solving: (5)(J); Principles of Manufacturing: (3)(E); Diversified Manufacturing I: (10)(E); Diversified Manufacturing II: (11)(E); Precision Metal Manufacturing I: (3)(B), (3)(D)-(E); Small Engine Technology I: (9)(G)-(H); Small Engine Technology II: (10)(H)-(I);	[Robotics Programming and Design: (5)(A)-(B), (7)(G)-(I), (7)(L)-(P)

[B. Systems of measurement]

[IV.B.1. Convert from one measurement system to another.]	[Grade 7: (4)(E)] [Geometry: (12)(D)]		[Applied Mathematics for Technical Professionals: (4)(A), (4)(E) Engineering Mathematics: (3)(A); Mathematical Applications in Agriculture, Food, and Natural Resources: (4)(B), (5)(F), (7)(A), (12)(A); Mathematics for Medical Professionals: (5)(C) ; HVAC Tech I: (3)(A), (3)(C); Precision Metal Manufacturing I: (3)(B); Introduction to Welding: (5)(G); Welding I: (3)(J);	
[IV.B.2. Convert within a single measurement system.]	[Grade 4: (8)(B)] [Grade 5: (7)] [Grade 6: (4)(H)]	[Grade 8: (8)(D) [Astronomy: (6)(E) [Chemistry: (2)(G) [Environmental Systems: (2)(F)	[Applied Mathematics for Technical Professionals: (4)(A), (4)(E); Engineering Mathematics: (8)(H); Mathematical Applications in Agriculture, Food, and Natural Resources: (4)(B), (4)(D), (5)(F), (7)(A), (12)(A); Mathematics for Medical Professionals: (5)(C) ; Precision Metal Manufacturing I: (3)(B);]	

[C. Measurement involving geometry and algebra]

[IV.C.1. Find the perimeter and area of two-dimensional figures.]	Grade 2: (9)(F)] Grade 3: (6)(C)-(E), (7)(B)] Grade 4: (5)(C)-(D)] Grade 5: (4)(H)] Grade 6: (8)(D)] Grade 7: (9)(B)-(C)] Grade 8: (10)(D)] Geometry: (10)(B), (11)(A)-(B), (12)(B)-(C)] Precalculus: (4)(A)-(C)]		[Applied Mathematics for Technical Professionals: (3)(B), (3)(D)-(E), (3)(H); Engineering Mathematics: (6)(A), (10)(D), (10)(G), (10)(J), (10)(M)-(N); Mathematical Applications in Agriculture, Food, and Natural Resources: (4)(B), (4)(E), (5)(F), (7)(C), (9)(B), (10)(A), (11)(A)-(C), (12)(A), (12)(C), (12)(E); Agricultural Mechanics and Metal Technology: (11)(E); Engineering Science: (11)(B); Diversified Manufacturing II: (2)(C); Metal Fabrication and Machining I: (2)(C), (7)(A); Metal Fabrication and Machining II: (3)(E), (8)(B); Precision Metal Manufacturing I: (3)(B), (3)(E); Welding II: (3)(D)	
[IV.C.2. Determine the surface area and volume of three-dimensional figures.]	[Grade 5: (4)(H), (6)(A)-(B)] [Grade 7: (9)(A), (9)(D)] [Grade 8: (6)(A)-(B), (7)(A)-(B), (10)(D)] [Geometry: (10)(B), (11)(C)-(D)] [Mathematical Models with Applications: (6)(B), (7)(D)]		[Applied Mathematics for Technical Professionals: (3)(B), (3)(E), (3)(H); Engineering Mathematics: (6)(K)-(O), (8)(C)-(D), (8)(G); Mathematical Applications in Agriculture, Food, and Natural Resources: (4)(B), (4)(E), (5)(F), (7)(C), (8)(A), (9)(B), (11)(A)-(C), (12)(C), (12)(E); Mathematics for Medical Professionals: (7)(A)-(B); Agricultural Mechanics and Metal Technology: (11)(E); Engineering Science: (11)(B); Diversified Manufacturing I: (2)(C); Diversified Manufacturing II: (2)(C); Manufacturing Engineering Technology I: (8)(B); Metal Fabrication and Machining I: (2)(C), (7)(A); Metal Fabrication and Machining II: (3)(E), (8)(B); Precision Metal Manufacturing I: (3)(B), (3)(E); Welding II: (3)(D); Small Engine Technology I: (6)(C); Small Engine Technology II: (7)(D)-(E)]	
[IV.C.3. Determine indirect measurements of figures using scale drawings, similar figures, the Pythagorean Theorem, and basic trigonometry.]	[Grade 6: (5)(A), (8)(A)] [Grade 7: (5)(A), (5)(C)] [Grade 8: (3)(A), (6)(C), (7)(C)-(D)] [Geometry: (5)(A), (5)(D), (9)(B), (10)(B)] [Precalculus: (4)(E)-(I), (4)(K)] [Mathematical Models with Applications: (6)(C)-(D), (7)(A)] [Advanced Quantitative Reasoning: (2)(D)]		[Applied Mathematics for Technical Professionals: (3)(G)-(H), (4)(D), (4)(F) Engineering Mathematics: (4)(C), (5)(A)-(B) ; Mathematical Applications in Agriculture, Food, and Natural Resources: (7)(C), (8)(B); Agricultural Mechanics and Metal Technology: (11)(E); Masonry Technology II: (2)(D); Diversified Manufacturing I: (2)(C)]	

[D. Measurement involving statistics and probability]				
[IV.D.1. Compute and use measures of center and spread to describe data.]	[Grade 6: (12)(B), (13)(B)] [Grade 7: (12)(A)] [Grade 8: (11)(B)] [Mathematical Models with Applications: (9)(B)] [Advanced Quantitative Reasoning: (4)(K), (4)(P)] [Statistics: (4)(B)-(E)]	[Aquatic Science: (2)(F)] [Environmental Systems: (2)(F)]	[Engineering Mathematics: (4)(D), (11)(B), (11)(D); Mathematical Applications in Agriculture, Food, and Natural Resources: (4)(C), (5)(E), (6)(C); Mathematics for Medical Professionals: (6)(C)-(D); Statistics and Business Decision Making: (10)(A)-(C), (14)(A)-(C), (15)(A), (16)(F)-(H), (17)-(19); Engineering Science: (15)(F); Biotechnology I: (3)(F)]	
[IV.D.2. Apply probabilistic measures to practical situations to make an informed decision.]	[Grade 7: (6)(B)-(D), (6)(F), (6)(H)] [Grade 8: (11)(C)] [Mathematical Models with Applications: (9)(B)] [Advanced Quantitative Reasoning: (4)(D)-(F), (4)(H)-(K), (4)(Q)-(S)] [Statistics: (4)(C), (4)(E)-(F), (5)(D), (6)(C)-(F), (6)(I)-(J)]		[Mathematics for Medical Professionals: (6)(C)-(G); Statistics and Business Decision Making: (12)-(13); Engineering Science: (15)(A), (15)(D)-(E); Business Information Management II: (7)(B)]	[Grade 7: (6)(B)-(D), (6)(F), (6)(H)] [Grade 8: (11)(C)] [Mathematical Models with Applications: (9)(B)] [Advanced Quantitative Reasoning: (4)(D)-(F), (4)(H)-(K), (4)(Q)-(S)] [Statistics: (4)(C), (4)(E)-(F), (5)(D), (6)(C)-(F), (6)(I)-(J)]
IV. [V.] Probabilistic Reasoning				
A. Counting principles				
IV. [V.] A.1. Determine the nature and the number of elements in a finite sample space.	Grade 7: (6)(A) Geometry: (13)(A) Mathematical Models with Applications: (8)(A) Advanced Quantitative Reasoning: (2)(E)		Statistics and Business Decision Making: (9), (11)(A)	Discrete Mathematics for Computer Science: (1)(C), (2)(D), (4)(N), (6)(B), (6)(H), (6)(M)
B. Computation and interpretation of probabilities				
IV. [V.] B.1. Compute and interpret the probability of an event and its complement.	Grade 7: (6)(C)-(E), (6)(I) Geometry: (13)(B)-(E) Advanced Quantitative Reasoning: (4)(C) Statistics: (5)(A)-(B)		Statistics and Business Decision Making: (11)(B) Engineering Science: (15)(D)-(E)	Discrete Mathematics for Computer Science: (1)(C), (4)(N), (6)(J)-(K)
IV. [V.] B.2. Compute and interpret the probability of conditional and compound events.	Grade 7: (6)(C)-(E), (6)(I) Geometry: (13)(C)-(E) Advanced Quantitative Reasoning: (4)(A)-(F) Statistics: (5)(A)-(B)		Statistics and Business Decision Making: (11)(B) Engineering Science: (15)(D)-(E)	Discrete Mathematics for Computer Science: (1)(C), (4)(K), (4)(N), (6)(J)-(K)
C. Measurement involving probability				
IV.C.1. Use probability to make informed decisions. [V.]	Grade 7: (6)(B)-(D), (6)(F), (6)(H) Grade 8: (11)(C) Mathematical Models with Applications: (9)(B) Advanced Quantitative Reasoning: (4)(D)-(F), (4)(H)-(K), (4)(Q)-(S) Statistics: (4)(C), (4)(E)-(F), (5)(D), (6)(C)-(F), (6)(I)-(J)		Mathematics for Medical Professionals: (6)(C)-(G); Statistics and Business Decision Making: (12)-(13); Engineering Science: (15)(A), (15)(D)-(E) Business Information Management II: (7)(B)	
V. [VI.] Statistical Reasoning				
A. Design a study [Data collection]				
V. [VI.].A.1. Formulate a statistical question, plan an investigation, and collect data. [Plan a study.]	Kindergarten - Grade 12: (1)(B)Mathematical Models with Applications: (9)(C), (10)(A)Advanced Quantitative Reasoning: (4)(K)-(O), (4)(S) Statistics: (2)(A)-(G)	Kindergarten – Grade 2: (2)(A)-(C) Grades 3 – 4: (2)(A)-(B) Grade 5 - 8: (2)(A)-(C) Aquatic Science: (2)(E) Astronomy: (2)(E) Biology: (2)(E) Chemistry: (2)(E) Environmental Systems: (2)(E) Integrated Physics and Chemistry: (2)(B) Physics: (2)(ED)	Accounting II: (2)(B), (8)(A); Applied Mathematics for Technical Professionals: (1)(B); Digital Electronics: (2)(B); Engineering Mathematics: (2)(B); Financial Mathematics: (2)(B); Manufacturing Engineering Technology II: (2)(B); Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(B); Mathematics for Medical Professionals: (2)(B), (6)(H); Robotics II: (2)(B); Statistics and Business Decision Making: (2)(B), (8)(A)-(E); AC/DC Electronics: (4)(D); Engineering Science: (3)(E); Biotechnology I: (3)(E); Biotechnology II: (3)(E); Scientific Research and Design: (3)(E)	Robotics Programming and Design: (1)(B)
B. Describe data				
V. [VI.].B.1. Classify [Determine] types of data.	Grade 5: (9)(A)-(B) Grade 6: (12)(C)-(D), (13)(B) Advanced Quantitative Reasoning: (4)(L)-(N) Statistics: (2)(D), (4)(A)	[Integrated Physics and Chemistry: (4)(B) Physics: (2)(L)]	Mathematical Applications in Agriculture, Food, and Natural Resources: (6)(D), (7)(D), (8)(C), (9)(C), (10)(C), (11)(D), (12)(D); Statistics and Business Decision Making: (9); Principles of Technology: (3)(F); Engineering Design and Problem Solving: (3)(F); Engineering Science: (3)(F); Scientific Research and Design: (3)(F); Principles of Information Technology: (9)(D); Business Information Management I: (7)(D)	

Standard				
V. [VI.].B.2. Construct [Select and apply] appropriate visual representations of data.	Kindergarten: (8)(A)-(B) Grade 1: (8)(A)-(B) Grade 2: (10)(B) Grade 3: (8)(A) Grade 4: (9)(A) Grade 5: (9)(A)-(B) Grade 6: (12)(A) Grade 8: (11)(A) Mathematical Models with Applications: (10)(B) Advanced Quantitative Reasoning: (3)(A), (4)(P)-(R), (4)(T) Statistics: (2)(F)	Kindergarten – Grade 2: (2)(D) Grade 3 – 4: (2)(C) Grade 5: (2)(G) Grades 6 - 8: (3)(C) Aquatic Science: (2)(J) Biology: (2)(H) Chemistry: (2)(I) Earth and Space Science: (2)(I) Environmental Systems: (2)(K) Integrated Physics and Chemistry: (2)(E), (3)(B), (4)(B) Physics: (2)(IJ)-(L), (4)(A)-(DF), (6)(D)	Accounting II: (1)(A), (4)(I); Digital Electronics: (1)(C); Engineering Mathematics: (1)(C); Financial Mathematics: (1)(A), (6)(F); Manufacturing Engineering Technology II: (1)(F); Mathematical Applications in Agriculture, Food, and Natural Resources: (5)(D); Mathematics for Medical Professionals: (1)(A); Robotics II: (1)(J); Statistics and Business Decision Making: (1)(A), (7)(D), (9); Principles of Technology: (3)(J)-(K), (5)(H), (5)(J); Engineering Design and Problem Solving: (3)(H); Engineering Science: (3)(H); Scientific Research and Design: (3)(J), (10)(A); Principles of Information Technology: (5)(D); Business Information Management I: (9)(A)-(C), (11)(C)	
V. [VI.].B.3. Compute and describe the study data with measures of center and basic notions of spread. [summary statistics of data.]	Grade 2, (10)(C) Grade 3: (8)(A)-(B) Grade 4: (9)(B) Grade 5: (9)(C) Grade 6: (12)(B)-(D), (13)(A)-(B) Grade 7: (6)(G), (12)(A) Grade 8: (11)(B) Mathematical Models with Applications: (9)(B), (9)(D) Advanced Quantitative Reasoning: (4)(I), (4)(K), (4)(P) Statistics: (4)(B)-(E), (5)(C)-(D)	[Aquatic Science: (2)(F); Environmental Systems: (2)(F)]	Engineering Mathematics: (4)(D), (11)(B), (11)(D) Mathematical Applications in Agriculture, Food, and Natural Resources: (4)(C), (5)(E), (6)(C) Mathematics for Medical Professionals: (6)(C)-(G) Statistics and Business Decision Making: (10)(A)-(C), (14)(A)-(C), (15)(A), (16)(E)-(H), (17)-(19); Engineering Science: (15)(F) Biotechnology I: (3)(F) Engineering Mathematics: (11)(B), (11)(D) Diversified Manufacturing I: (10)(B) Business Information Management I: (11)(A) Food Science: (3)(E),(H), (6)(F)	
V. [VI.].B.4. Describe patterns and departure from patterns in the study [a set] of data.	Grade 4: (5)(B) Grade 5: (4)(D), (9)(B)-(C) Grade 8: (5)(C)-(D), (11)(A) Algebra I: (4)(A) Algebra II: (8)(A) Mathematical Models with Applications: (2)(C), (8)(C), (9)(A)-(B), (9)(E)-(F) Advanced Quantitative Reasoning: (3)(B), (4)(P)-(S) Statistics: (4)(C), (7)(A)-(B), (7)(C), (7)(E)-(F)	Grades 3 - 5: (2)(D) Grades 6 - 8: (2)(D) Aquatic Science: (2)(H) Astronomy: (2)(G), (9)(B) Biology: (2)(G) Chemistry: (2)(H) Earth and Space Science (2)(G) Environmental Systems: (2)(I) Integrated Physics and Chemistry: (2)(D), (7)(F) Physics: (2)(HJ), (2)(JL), (3)(A), (3)(EF)	Accounting II: (8)(A) Applied Mathematics for Technical Professionals: (6)(C) Engineering Mathematics: (11)(B), (11)(D) Financial Mathematics: (6)(F) Mathematical Applications in Agriculture, Food, and Natural Resources: (4)(B), (4)(G), (5)(B), (6)(D), (7)(D), (8)(C), (9)(C), (10)(C), (11)(D), (12)(D) Mathematics for Medical Professionals: (3)(C), (4)(A) Statistics and Business Decision Making: (7)(A), (16)(F)-(H), (17)-(19), (20)(A)-(C), (21), (22)(A)-(D) Engineering Science: (15)(F) Biotechnology I: (3)(F) Business Information Management I: (11)(A)	
C. [Read,] A[a]nalyze, interpret, and draw conclusions from data				
V. [VI.].C.1. Analyze data sets using graphs and summary statistics. [Make predictions and draw inferences using summary statistics.]	Grade 5: (9)(A)-(C) Grade 6: (12)(A), (12)(C)-(D), (13)(A) Grade 7: (12)(A)-(C) Grade 8: (11)(A) Algebra I: (4)(A) Algebra II: (8)(A) Mathematical Models with Applications: (9)(A)-(B), (9)(E), (10)(B) Advanced Quantitative Reasoning: (3)(C), (4)(P)-(R) Statistics: (4)(B), (4)(D)-(E)	Grades 6-8: (2)(E), (3)(A) [, (3)(C)] Aquatic Science: (2)(F), (3)(A) [, (3)(C)] Astronomy: (2)(G), (3)(A) [, (3)(C)] Biology: (2)(G), (3)(A) [, (3)(C)] Chemistry: (2)(H), (3)(A), (3)(C) Earth and Space Science: (2)(G), (3)(A) [, (3)(C)] Environmental Systems: (2)(F), (2)(I), (3)(A), [, (3)(C)] Integrated Physics and Chemistry: (2)(D), [, (3)(C) (7)(F)] Physics: (2)(I)-(J), (3)(A) [(C), (3)(F)]	Applied Mathematics for Technical Professionals: (6)(C) ; Engineering Mathematics: (11)(B)-(D); Manufacturing Engineering Technology II: (8)(C); Mathematical Applications in Agriculture, Food, and Natural Resources: (4)(B)-(C), (4)(G), (5)(B), (5)(E), (6)(C), (7)(D), (8)(C), (9)(C), (10)(C), (11)(D), (12)(D); Mathematics for Medical Professionals: (3)(C), (4)(A), (6)(C)-(G); Statistics and Business Decision Making: (7)(B), (9), (10)(B)-(C), (12)-(13), (16)(E)-(H), (17)-(19), (20)(C), (21); Engineering Design and Problem Solving: (3)(H); Engineering Science: (3)(H); Scientific Research and Design: (3)(J), (10)(A); Web Technologies: (8)(G); Business Information Management I: (10)(C-D)	
V. [VI.].C.2. Analyze relationships between paired data using spreadsheets, graphing calculators, or statistical software. [Analyze data sets using graphs and summary statistics.]	Kindergarten - Grade 12: (1)(C) Grade 8: (5)(C), (11)(A) Algebra I: (4)(A), (4)(C), (8)(B), (9)(E) Algebra II: (8)(A)Mathematical Models with Applications: (8)(C), (9)(F) Advanced Quantitative Reasoning: (3)(A), (4)(P), (4)(R) Statistics: (5)(C)-(D) Algebraic Reasoning: (2)(C)-(D)	Grades 6-8: (2)(D)-(E), (3)(A) Aquatic Science: (2)(F), (2)(H), (2)(J), (3)(A), (3)(C), (3)(A), (5)(A)-(B) Astronomy: (2)(F)-(G), (2)(I), (3)(A), (3)(C), (6)(D), (8)(C), (11)(C), (11)(G) Biology: (2)(G), (3)(A), (2)(F), (2)(H) Chemistry: (2)(H), (3)(A), (2)(E), (2)(I), (11)(C) Earth and Space Science: (2) [(G)] (E)-(I) (3)(A), (4)(A), (5)(A), (13)(A)-(C), (14)(A), (15)(B), (15)(C), (15)(E) Environmental Systems: (2)(F)-(I), (2)(K), (3)(A), (4)(A)(D), (4)(F)-(G), [(5)(E),] (7)(B)-(D), (8)(A), (8)(E) Integrated Physics and Chemistry: (2)(D)-(E), (3)(A), (4)(A)-(B), (4)(D), (7)(F) Physics: (2) [(I)-(L) (H)-(J), (3)(A)-(D), (3)(EF), (4)(A)-(D), (5)(B)-(C), (5)(F), (6)(A), (6)(C), (7)(B), (8)(C)	[Accounting II: (2)(C), (8)(A)Applied Mathematics for Technical Professionals: (1)(C), (6)(C)Digital Electronics: (2)(C) Engineering Mathematics: (2)(C) Financial Mathematics: (2)(C), (4)(C), (4)(F), (6)(F) Manufacturing Engineering Technology II: (2)(C)Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(C), (4)(G), (5)(B), (6)(C), (7)(D), (8)(C), (9)(C), (10)(C), (11)(D), (12)(D)Mathematics for Medical Professionals: (2)(C), (4)(A)Robotics II: (2)(C) Statistics and Business Decision Making: (2)(C), (7)(C)-(D), (17)-(19), (20)(A)-(C), (21), (22)(A)-(D) Principles of Technology: (3)(J)-(K), (5)(H), (5)(J); Engineering Design and Problem Solving: (3)(H); Engineering Science: (3)(H); Scientific Research and Design: (3)(J), (10)(A); Principles of Information Technology: (8)(E)] Applied Mathematics for Technical Professionals: (6)(C); Financial Mathematics: (4)(F), (6)(F); Mathematical Applications in Agriculture, Food, and Natural Resources: (4)(G), (5)(B), (6)(D), (7)(D), (8)(C), (9)(C), (10)(C), (11)(D), (12)(D); Mathematics for Medical Professionals: (4)(A); Statistics and Business Decision Making: (7)(C)-(D), (20)(A)-(C), (21), (22)(A)-(D) Principles of Technology: (3)(I)-(K), (5)(H)-(J); Engineering Design and Problem Solving: (3)(G)-(H); Engineering Science: (3)(H); Scientific Research and Design: (3)(G)-(J), (10)(A); Principles of Information Technology: (8)(E)	Robotics Programming and Design: (1)(C)

V. [VI.]C.3. Make predictions using summary statistics. [Analyze relationships between paired data using spreadsheets, graphing calculators, or statistical software.]	Kindergarten: (8)(C) Grade 1: (8)(C) Grade 2: (10)(D) Grade 6: (12)(C)-(D) Grade 7: (6)(F), (12)(B)-(C) Grade 8: (11)(C) Mathematical Models with Applications: (8)(C), (9)(B), (9)(D)-(F), (10)(A) Advanced Quantitative Reasoning: (3)(B), (4)(K), (4)(R) Statistics: (4)(D), (4)(F), (6)(I)-(J)	Grades 6-8: (2)(E) Aquatic Science: (2)(F), (2)(H) Astronomy: (2)(G) Biology: (2)(FG) Chemistry: (2)(H) Earth and Space Science: (2)(G) Environmental Systems: (2)(F), (2)(I) Integrated Physics and Chemistry: (2)(D), (7)(F) Physics: (2)(H), (2)(J), [(L), (3)(A),] (3)(F)	Applied Mathematics for Technical Professionals: (6)(C) Engineering Mathematics: (11)(B), (11)(D) Financial Mathematics: (6)(F); Mathematical Applications in Agriculture, Food, and Natural Resources: (4)(B)-(C), (5)(E), (6)(C), (7)(D), (8)(C), (9)(C), (10)(C), (11)(D), (12)(D) Mathematics for Medical Professionals: (6)(C), (6)(F)-(G) Statistics and Business Decision Making: (16)(E)-(H), (17)-(19), (20)(C), (21); Engineering Science: (15)(F) Biotechnology I: (3)(F)	
V. [VI.]C.4. Identify and explain misleading uses of data. [Recognize reliability of statistical results.]	Algebra I: (4)(A) Mathematical Models with Applications: (8)(C), (9)(E) Advanced Quantitative Reasoning: (3)(B), (4)(H)-(K), (4)(O), (4)(Q)-(S) Statistics: (7)(C), (7)(E)-(F)	Grade 3-8: (3)(A) Aquatic Sciences: (3)(A)-(C) Astronomy: (3)(A)-(C) Biology: (3)(A)-(C) Chemistry: (3)(A)-(C) Earth and Space Science: (3)(A)-(C) Environmental Systems: (3)(A)-(C) Integrated Physics and Chemistry: [(2)(D),] (3)(A)-(C), [(3)(C)] Physics: (2)(I)-(J), (3)(A)-(C)	[Mathematical Applications in Agriculture, Food, and Natural Resources: (5)(C);] [Statistics and Business Decision Making: (4)(A)-(E), (5), (7)(B)] [Principles of Technology: (3)(J)-(K), (5)(H), (5)(J)] [Engineering Design and Problem Solving: (3)(H)] [Engineering Science: (3)(H)] [Scientific Research and Design: (3)(J)] Mathematical Applications in Agriculture, Food, and Natural Resources: (5)(C) Statistics and Business Decision Making: (4)(A)-(E), (5), (7)(B) Principles of Technology: (3)(J)-(K), (4)(A), (5)(H), (5)(J) Engineering Design and Problem Solving: (3)(H)	

VI. [VII.] Functions				
A. Recognition and representation of functions				
VI.[VII.]A.1. Recognize if [whether] a relation is a function.	Grade 8: (5)(G) Algebra I: (12)(A)			
VI.[VII.]A.2. Recognize and distinguish between different types of functions.	Grade 6: (4) Grade 8: (5)(F), (5)(H), (11)(A) Algebra II: (2)(A), (8)(A)-(B) Precalculus: (2)(F), (2)(I)-(M) Mathematical Models with Applications: (7)(A) Advanced Quantitative Reasoning: (3)(A)-(H) Statistics: (7)(A) Algebraic Reasoning: (2)(A)-(D), (3)(A)-(C), (3)(F), (4)(B), (6)(A)-(C), (7)(A)-(B), (7)(D)-(E)	Physics: (3)(FE)	Applied Mathematics for Technical Professionals: (2)(B) Mathematical Applications in Agriculture, Food, and Natural Resources: (6)(C), (7)(B), (8)(A), (9)(A), (10)(A), (11)(B)	
B. Analysis of functions				
VI.[VII.]B.1. Understand and analyze features of a functions.	Grade 6: (6)(A) Grade 7: (7) Grade 8: (4)(A), (4)(C), (11)(A) Algebra I: (2)(A), (3)(A)-(C), (6)(A), (7)(A), (9)(A)-(B), (9)(D) Algebra II: (2)(A), (2)(C), (5)(C), (6)(K), (7)(I) Precalculus: (2)(F)-(O) Mathematical Models with Applications: (7)(A) Advanced Quantitative Reasoning: (3)(A)-(H) Statistics: (7)(A), (7)(C), (7)(E) Algebraic Reasoning: (2)(A)-(D), (3)(A)-(F), (4)(A)-(D), (7)(A)-(B), (7)(D)-(E)		Applied Mathematics for Technical Professionals: (2)(B), (2)(H), (5)(A), (6)(A), (6)(C); Financial Mathematics: (4)(F), (5)(C)-(D), (7)(A), (11)(B), (11)(D), (17)(F) Mathematical Applications in Agriculture, Food, and Natural Resources: (6)(B), (7)(B), (8)(A), (9)(A), (10)(A), (11)(B) Mathematics for Medical Professionals: (4)(A)-(C), (4)(E) Statistics and Business Decision Making: (20)(A), (22)(A)-(D)	
VI.[VII.]B.2. Algebraically construct and analyze new functions.	Grade 8: (5)(E) Algebra I: (2)(D), (3)(E), (7)(C) Algebra II: (2)(B), (4)(C), (4)(E), (5)(A)-(B), (6)(A), (6)(C), (6)(G)-(H), (6)(L) Precalculus: (2)(A), (2)(C), (2)(E), (2)(G), (3)(B)-(C) Mathematical Models with Applications: (9)(F) Advanced Quantitative Reasoning: (3)(A)-(H) Statistics: (7)(B) Algebraic Reasoning: (3)(D)-(F), (4)(A)-(C)		Applied Mathematics for Technical Professionals: (5)(E) Financial Mathematics: (6)(C), (7)(A)	

C. Model real-world situations with functions

VI.[VII.]C.1. Apply known functions to model real-world situations. [models.]	Grade 8: (5)(D) Algebra I: (2)(D), (4)(C), (8)(B), (9)(B), (9)(E), (12)(D) Algebra II: (3)(A), (3)(E), (4)(E), (5)(B), (6)(D), (6)(H), (6)(L), (8)(A)Precalculus: (2)(N)-(P) Mathematical Models with Applications: (3)(A), (3)(C)-(D), (5)(A)-(C), (7)(A) Advanced Quantitative Reasoning: (3)(A), (3)(C), (3)(E)-(H) Statistics: (7)(A)-(B) Algebraic Reasoning: (2)(A)-(D), (3)(C)-(E), (5)(D)-(E), (6)(B), (7)(D)-(E)	Physics: (4)(B)-(C), (7)(B)-(C)	Applied Mathematics for Technical Professionals: (2)(B), (2)(H), (5)(A), (6)(A), (6)(C) Financial Mathematics: (4)(F), (5)(C), (7)(A), (11)(B), (11)(D) Mathematical Applications in Agriculture, Food, and Natural Resources: (5)(F), (6)(B), (7)(B), (8)(A), (9)(A), (10)(A), (11)(B) Mathematics for Medical Professionals: (4)(A)-(C), (4)(E) Statistics and Business Decision Making: (20)(A)-(C), (21), (22)(A)-(D) Engineering Science: (10)(G)-(H), (16)(C)-(D) Food Science: (8)(C)	
VI.[VII.]C.2. Develop a function to model a situation.	Grade 6: (6)(C) Grade 7: (7) Grade 8: (4)(B)-(C) Algebra I: (2)(B)-(G), (4)(C), (6)(B)-(C), (9)(C), (9)(E), (12)(D) Algebra II: (4)(A)-(B), (4)(E), (5)(B), (6)(D), (6)(H), (6)(L), (8)(B) Precalculus: (2)(N)-(P), (5)(H)-(I), (5)(N) Mathematical Models with Applications: (5)(B)-(C), (7)(A), (9)(F) Advanced Quantitative Reasoning: (3)(A), (3)(C)-(H) Statistics: (7)(B)-(D) Algebraic Reasoning: (2)(C)-(D), (3)(C)-(F), (6)(B), (7)(D)-(E)	Physics: (3)(E) [(F)]	Applied Mathematics for Technical Professionals: (2)(B), (2)(H), (5)(A), (6)(A), (6)(C) Financial Mathematics: (4)(F), (5)(C), (7)(A), (11)(B), (17)(F) Mathematical Applications in Agriculture, Food, and Natural Resources: (4)(F), (5)(F), (6)(C) Mathematics for Medical Professionals: (4)(A) Robotics II: (7)(H)-(K), (8)(I)-(J) Statistics and Business Decision Making: (20)(B), (21) Engineering Science: (10)(G)-(H), (13)(A)-(E); (16)(C)-(D) Principles of Information Technology: (8)(C) Precision Metal Manufacturing II: (12)(C) Precision Metal Manufacturing II Lab: (7)(C)	Robotics Programming and Design: (5)(A)-(F)

VII. [VIII.] Problem Solving and Reasoning

A. Mathematical problem solving

VII.[VIII.]A.1. Analyze given information.	Kindergarten - Grade 12: (1)(B), (1)(F) Grade 8: (5)(C)-(D), (5)(F) Algebra I: (2)(A), (3)(E), (6)(A), (9)(A), (10)(F) Algebra II: (2)(A), (2)(C), (4)(G), (5)(A), (5)(E), (6)(A), (6)(C), (6)(G), (6)(J)-(K), (8)(A) Geometry: (2)(A), (5)(A)-(D), (6)(A)-(B), (6)(D)-(E), (7)(A)-(B), (8)(A)-(B), (9)(A)-(B), (10)(B), (12)(B)-(E), Precalculus: (2)(D), (2)(I)-(L), (2)(N) Mathematical Models with Applications: (2)(C), (3)(B)-(D), (4)(A)-(C), (6)(A), (7)(A)-(D), (8)(A), (8)(C), (9)(A)-(E) Advanced Quantitative Reasoning: (2)(B), (2)(G), (3)(B)-(H), (4)(G)-(Q) Discrete Mathematics for Problem Solving: (2)(A)-(L), (3)(A)-(C), (5)(G), (5)(J), (6)(J), (7)(D)-(F) Statistics: (2)(A)-(D), (2)(G), (3)(A), (3)(C)-(D), (4)(C)-(F), (5)(B), (5)(D), (6)(E), (6)(I), (7)(A), (7)(C)-(E) Algebraic Reasoning: (2)(A), (2)(C)-(D), (3)(A)-(B), (3)(F), (4)(A)-(B), (6)(A), (7)(A)-(E)	Grades 6 - 8: (2)(E),(3)(A) Grade 8: (6)(A)-(C), Aquatic Science: (2)(H), (3)(A)-(B) Astronomy: (2)(G), (3)(A)-(B), (7)(A)-(B), (8)(A)-(B), (9)(A)-(B) Biology: (2)(G), (3)(A)-(B) Chemistry: (2)(H), (3)(A)-(B) Earth and Space Science: (2)(G), (3)(A)-(B), (4)(A), (5)(A), (13)(A)-(C), (14)(A), (15)(B), (15)(E) Environmental Systems: (2)(I), (3)(A), (4)(A), (4)(F)-(G), (5)(E), (7)(D), (8)(A), (8)(E) Integrated Physics and Chemistry: (2)(D),(3)(A), (4)(C), (4)(G), (5)(D)-(I), (6)(A)-(E), (7)(A)-(F) Physics: (2)(H)-(J), (2)(L), (3)(A)-(BC), (4)(A)-(C), (4)(E)-(F), (5)(A)-(C), (5)(G)-(H), (6)(E)-(G), (7)(A), (7)(C), (7)(E)-(F), (8)(A), (8)(C)	Accounting II: (2)(B), (2)(F), (3)(A), (4)(H)-(I), (5)(B), (5)(L)-(N), (6)(B), (6)(D)(i)-(iii), (6)(E)(i)-(vi), (6)(G)(i)-(iv), (6)(H), (6)(K)(i)-(iii), (6)(K)(v), (6)(R)(i)-(vi), (8)(A); Applied Mathematics for Technical Professionals: (1)(B), (1)(F), (2)(B), (2)(D), (2)(H), (3)(E)-(F), (3)(H), (3)(J)-(K), (5)(A), (5)(C)-(E), (6)(A), (6)(C), (7)(D); Digital Electronics: (2)(B), (2)(F); Engineering Mathematics: (2)(B), (2)(F), (6)(B)-(C), (7)(C), (9)(B)-(D), (10)(B), (10)(F)-(G), (10)(I), (10)(K), (11)(B)-(E); Financial Mathematics: (2)(B), (2)(F), (3)(B)-(E), (3)(G), (3)(J)-(L), (4)(E), (4)(K), (5)(B), (5)(D)-(F), (6)(A), (6)(C)-(D), (6)(G)-(I), (7)(A), (7)(C), (7)(E), (7)(I)-(L), (8)(C)-(E), (9)(A), (9)(C)-(D), (10)(A), (10)(D)-(E); Manufacturing Engineering Technology II: (2)(B), (2)(F), (3)(B), (4)(B), (7)(B), (8)(C), (9)(C); Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(B), (2)(F), (4)(B), (4)(G), (5)(B), (6)(C), (7)(D), (8)(C), (9)(C), (10)(C), (11)(D), (12)(D); Mathematics for Medical Professionals: (2)(B), (2)(F), (3)(C), (4)(A)-(C), (4)(E), (6)(A)-(C), (7)(D); Robotics II: (2)(B), (2)(F), (6)(B), (10)(A)-(C), (10)(E)-(F), (11)(B), (12)(A), (12)(E)-(F); Statistics and Business Decision Making: (2)(B), (2)(F), (3)(A), (3)(C), (4)(A)-(E), (5), (6)(A)-(C), (7)(B); Engineering Design and Problem Solving: (4)(A); Engineering Science: (4)(A); Biotechnology I: (4)(A); Biotechnology I: (4)(A); Scientific Research and Design: (4)(A); Principles of Information Technology: (8)(E); Diversified Manufacturing I: (10)(B); Diversified Manufacturing II: (6)(B), (11)(B); Manufacturing Engineering Technology I: (8)(B); Precision Metal Manufacturing II: (7)(A), (11)(D)-(H); Small Engine Technology II: (6)(B); Business Information Management I: (10)(C)-(D); Food Science:(1)(E)(4)	Discrete Mathematics for Computer Science: (4)(A)-(C), (4)(F), (4)(J), (4)(L)-(O), (6)(A)-(B), (6)(D)-(G), (6)(M) Robotics Programming and Design: (1)(B), (1)(F), (2)(F), (3)(D), (4)(C), (4)(E), (5)(G), (7)(B)-(E), (7)(I), (7)(P), (7)(T)

VII.[VIII.]A.2. Formulate a plan or strategy.	Kindergarten - Grade 12: (1)(B) Mathematical Models with Applications: (10)(A) Advanced Quantitative Reasoning: (2)(H) Discrete Mathematics for Problem Solving: (2)(G), (2)(K)-(L), (3)(E), (7)(G) Statistics: (2)(A)-(F) Algebraic Reasoning: (7)(D)-(E)	Kindergarten – Grade 2: (2)(B), Grades 3-5: (2)(A) Grades 6-8: (2)(A-B) Aquatic Science: (2)(E)-(F) Astronomy: (2)(E)-(F) Biology: (2)(E)-(F) Chemistry: (2)(E)-(F) Environmental Systems: (2)(E)-(F) Integrated Physics and Chemistry: (2)(B) Physics: (2)(<u>ED</u>)	Accounting II: (1)(E), (2)(B), (4)(H)-(I), (5)(L)-(N), (6)(C)-(E), (6)(G)-(H), (6)(J)-(K); Applied Mathematics for Technical Professionals: (1)(B); Digital Electronics: (2)(B), (5)(A)-(B), (5)(D); Engineering Mathematics: (2)(B); Financial Mathematics: (2)(B); Manufacturing Engineering Technology II: (2)(B), (3)(A), (3)(C)-(D), (4)(A), (5)(A), (5)(C), (8)(A), (9)(A); Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(B); Mathematics for Medical Professionals: (2)(B), (6)(H) Robotics II: (2)(B), (4)(A)-(B), (6)(B), (7)(H)-(K), (8)(A)-(J), (10)(A)-(B), (11)(C), (12)(A)-(B); Statistics and Business Decision Making: (2)(B); Principles of Technology: (4)(A), (7)(A); Engineering Design and Problem Solving: (4)(A); Engineering Science: (4)(A); Biotechnology I: (4)(A); Scientific Research and Design: (4)(A); Principles of Information Technology: (1)(G); Web Technologies: (9)(C); Diversified Manufacturing II: (6)(B); Manufacturing Engineering Technology I: (2)(B), (8)(C); Precision Metal Manufacturing II: (7)(A)-(B), (11)(D), (12)(D)-(G); Precision Metal Manufacturing II Lab: (6)(D)-(H), (7)(D)-(G); Small Engine Technology II: (6)(B)	Discrete Mathematics for Computer Science: (1)(A)-(B), (4)(D)-(F), (4)(L)-(O), (6)(A)-(D), (6)(G), (6)(I), (6)(M) Robotics Programming and Design: (1)(B), (3)(A)-(B), (3)(D), (4)(B)-(C), (4)(E), (5)(A)-(G), (7)(B), (7)(H)-(I), (7)(K), (7)(M), (7)(P), (7)(T)
VII.[VIII.]A.3. Determine a solution.	Kindergarten - Grade 12: (1)(B) Grade 4: (7)(E), (8)(C) Grade 6: (8)(D), (10)(A) Grade 7: (6)(G)-(H), (9)(A)-(D), (11)(A) Grade 8: (8)(C), (9) Algebra I: (5)(A)-(C), (8)(A) Algebra II: (3)(B)-(C), (3)(F)-(G), (4)(F), (4)(H), (5)(D), (6)(B), (6)(E)-(F), (6)(I), (6)(L), (7)(H) Geometry: (5)(D), (6)(A), (6)(D)-(C), (7)(B), (8)(A)-(B), (9)(A)-(B), (11)(A)-(C), (12)(A)-(C) Precalculus: (2)(N), (3)(C), (4)(D)-(K), (5)(H)-(K), (5)(N) Mathematical Models with Applications: (2)(A)-(B), (5)(A), (6)(C)-(D) Advanced Quantitative Reasoning: (2)(C)-(E) Discrete Mathematics for Problem Solving: (2)(E)-(F), (2)(J), (3)(F), (4)(J), (5)(D), (6)(K) Statistics: (6)(C)-(D) Algebraic Reasoning: (5)(D)-(E), (6)(B)-(C)	[<u>Kindergarten – Grade 2: (3)(A)</u>] <u>Grades 1 & 2: (3)(A)</u> <u>Grades 3 - 5: (2)(D)</u> <u>Grades 6 – 8: (2)(E)</u> <u>Aquatic Science: (2)(J)</u> <u>Astronomy: (2)(H)</u> <u>Biology: (2)(H)</u> <u>Chemistry: (2)(I)</u> <u>Integrated Physics and Chemistry: (2)(E)</u> Physics: (2)(I), (3)(<u>FE</u>) <u>Environmental Systems: (2)(K)</u> <u>Earth and Space Science: (2)(I)</u>	Accounting II: (1)(B), (1)(E), (2)(B), (3)(C)-(D), (3)(F), (3)(I), (4)(C)-(G), (4)(I), (5)(B), (5)(D)-(F), (5)(I), (5)(K)-(P), (6)(D)(i)-(iii), (6)(E)(iii), (6)(E)(v)-(vi), (6)(G)(iii)-(iv), (6)(H), (6)(K)(i)-(iii), (6)(K)(vi)-(vii); Applied Mathematics for Technical Professionals: (1)(B), (2)(A), (2)(D), (2)(F)-(H), (3)(B)-(H), (4)(A), (4)(E)-(F), (5)(B), (5)(D), (5)(E)-(F), (6)(B); Digital Electronics: (2)(B); Engineering Mathematics: (2)(B), (3)(B)-(D), (4)(A)-(M), (5)(A)-(B), (6)(B)-(O), (7)(A), (7)(F)-(I), (8)(A), (8)(D), (8)(G)-(H), (8)(L)-(S), (9)(A), (9)(E)-(H), (10)(A)-(D), (10)(F)-(H), (10)(J), (10)(M)-(N), (11)(A)-(B), (11)(F); Financial Mathematics: (2)(B), (3)(F), (3)(H)-(I), (4)(A)-(C), (4)(F)-(I), (5)(C), (6)(B), (6)(E), (7)(B), (7)(D), (7)(F)-(G), (8)(A)-(B), (8)(F), (9)(B), (10)(B)-(C), (11)(B)-(D), (12)(B), (13)(A), (17)(C), (17)(G); Manufacturing Engineering Technology II: (2)(B), (3)(C), (5)(B), (5)(D), (9)(B); Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(B), (4)(A)-(F), (5)(F), (6)(A)-(B), (7)(A)-(C), (8)(A)-(B), (9)(A)-(B), (10)(A)-(B), (11)(A)-(C), (12)(A)-(C), (12)(E); Mathematics for Medical Professionals: (2)(B), (3)(A), (3)(C), (3)(E), (4)(A)-(B), (4)(D)-(F), (5)(C), (6)(F), (7)(A)-(D)Robotics II: (2)(B), (6)(A), (6)(C)-(D), (7)(A), (7)(D), (7)(F)-(K), (8)(A)-(J), (10)(A), (11)(A), (11)(D), (12)(C)-(D); Statistics and Business Decision Making: (2)(B); Collision Repair: (3)(D), (5)(D); Principles of Technology: (4)(A), (7)(A); Engineering Design and Problem Solving: (4)(A); Engineering Science: (4)(A); Biotechnology I: (4)(A); Scientific Research and Design: (4)(A); Diversified Manufacturing II: (6)(B), (9)(A), (11)(C); Metal Fabrication and Machining II: (3)(C), (8)(A); Precision Metal Manufacturing II: (7)(A); Small Engine Technology I: (1)(C), (5)(D), (6)(A); Small Engine Technology II: (1)(C), (5)(C), (6)(B), (7)(A)	Discrete Mathematics for Computer Science: (1)(A)-(B), (4)(D)-(F), (4)(L)-(N), (6)(A)-(B), (6)(G)-(M) Robotics Programming and Design: (1)(B), (2)(A), (2)(C), (2)(E), (2)(H), (3)(B), (3)(E), (4)(B)-(C), (7)(I), (7)(P), (7)(T),
VII.[VIII.]A.4. Justify the solution.	Kindergarten - Grade 12: (1)(B), (1)(G) Grade 6: (10)(B) Grade 8: (9) Algebra II: (3)(D), (4)(G), (5)(E), (6)(J), (8)(C) Mathematical Models with Applications: (3)(B), (9)(E) Advanced Quantitative Reasoning: (3)(F)-(H), (4)(S) Statistics: (6)(E)-(F), (7)(E)-(F)	<u>Grades 3 - 5: (2)(D)</u> <u>Grades 6 – 8: (2)(E)</u> <u>Aquatic Science: (2)(J)</u> <u>Astronomy: (2)(H)</u> <u>Biology: (2)(H)</u> <u>Chemistry: (2)(I)</u> Integrated Physics and Chemistry: (2)(E) <u>Physics: (2)(I), (3)(E)</u> <u>Environmental Systems: (2)(K)</u> <u>Earth and Space Science: (2)(I)</u>	Accounting II: (2)(B), (2)(G), (4)(I), (5)(L)-(N), (6)(H); Applied Mathematics for Technical Professionals: (1)(B), (1)(G) ; Digital Electronics: (2)(B), (2)(G); Engineering Mathematics: (2)(B), (2)(G); Financial Mathematics: (2)(B), (2)(G); Manufacturing Engineering Technology II: (2)(B), (2)(G); Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(B), (2)(G); Mathematics for Medical Professionals: (2)(B), (2)(G), (3)(E); Robotics II: (2)(B), (2)(G), (4)(A)-(B), (6)(B), (7)(K), (8)(C), (10)(C)-(G), (11)(B)-(D), (12)(E)-(F); Statistics and Business Decision Making: (2)(B), (2)(G), (16)(E); Principles of Technology: (4)(A), (7)(A), Engineering Design and Problem Solving: (4)(A); Engineering Science: (4)(A); Biotechnology I: (4)(A); Scientific Research and Design: (4)(A); Diversified Manufacturing I: (5)(A); Diversified Manufacturing II: (6)(B); Precision Metal Manufacturing II: (7)(A); Small Engine Technology II: (6)(B)	Robotics Programming and Design: (1)(B), (1)(G), (2)(D), (2)(F), (3)(F)-(H), (4)(A), (4)(C)-(E), (7)(T)
VII.[VIII.]A.5. Evaluate the problem-solving process.	Kindergarten - Grade 12: (1)(B) Algebra II: (2)(D) Mathematical Models with Applications: (8)(C), (9)(E), (10)(A) Advanced Quantitative Reasoning: (3)(B), (4)(S) Statistics: (3)(C)-(D), (6)(G)-(J), (7)(C)-(D)	Grades <u>63</u> - 8: (3)(A) Aquatic Science: (3)(A) Astronomy: (3)(A) Biology: (3)(A) Chemistry: (3)(A) Earth and Space Science: (3)(A) Environmental Systems: (3)(A) Integrated Physics and Chemistry: (3)(A) Physics: (3)(A)	Accounting II: (2)(B); Applied Mathematics for Technical Professionals: (1)(B); Digital Electronics: (2)(B); Engineering Mathematics: (2)(B); Financial Mathematics: (2)(B); Manufacturing Engineering Technology II: (2)(B); Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(B); Mathematics for Medical Professionals: (2)(B), (4)(B); Robotics II: (2)(B), (6)(B), (10)(F), (12)(E)-(F) Statistics and Business Decision Making: (2)(B), (4)(A)-(E), (5), (6)(C), (7)(B), (15)(B); Principles of Applied Engineering: (6)(C); Principles of Technology: (4)(A), (7)(A), Robotics II: (2)(B); Engineering Design and Problem Solving: (4)(A); Engineering Science: (4)(A); Biotechnology I: (4)(A); Biotechnology I: (4)(A); Scientific Research and Design: (4)(A); Diversified Manufacturing II: (6)(B); Precision Metal Manufacturing II: (7)(A); Small Engine Technology II: (6)(B)	Robotics Programming and Design: (1)(B), (2)(D), (2)(F), (4)(A), (4)(D), (7)(T)

B. <u>Proportional</u> [<s>Logical</s>] reasoning

<u>VII.[VIII.]B.1. Use proportional reasoning to solve problems that require fractions, ratios, percentages, decimals, and proportions in a variety of contexts using multiple representations.</u> [<s>Develop and evaluate convincing argumen</s>t<s>s.</s>]	Kindergarten - Grade 12: (1)(G) <u>Grade 6: (4)(B)-(D), (4)(G)-(H), (5)(A)-(B)</u> <u>Grade 7: (4)(A)-(E), (5)(A)-(C), (6)(C)-(G), (6)(I), (12)(C)</u> <u>Grade 8: (3)(A)-(C), (4)(A)-(B), (5)(A), (5)(E), (10)(D)</u> Algebra I: (2)(D), (3)(A)-(B), (12)(C)-(D) Algebra I: (5)(B) Geometry: <u>(2)(A)-(B)</u>, (4)(B)-(D), (5)(A), (5)(C)-(D), (6)(A)-(E), (7)(B), (8)(A), <u>(9)(A)-(B)</u>, (12)(A)-<u>(D)-(E)</u> <u>Precalculus: (4)(B), (4)(D)-(H), (5)(B), (5)(D), (5)(M)</u> Mathematical Models with Applications: <u>(3)(A)-(D), (4)(A)-(C), (5)(A)-(B), (6)(A)-(B), (6)(D)</u> (7)(A)-(D), (8)(C), <u>(9)(A)-(D), (9)(E)</u>, (10)(B) Advanced Quantitative Reasoning: (2)(B)-<u>(C)</u>,	[<u>Grades 6 - 8: (3)(A)</u>] [<u>Grade 8: (6)(A)-(C), (7)(A)-(C)</u>] [<u>Aquatic Science: (2)(F), (I),(3)(A)</u>] [<u>Astronomy: (3)(A)</u>] [<u>Biology: (3)(A)</u>] [<u>Chemistry: (3)(A), (6)(C), (8)(B)(C)(G), (9)(A), (10)(C)(D)(H), (11)(D)</u>] [<u>Earth and Space Science: (3)(A), (7)(B), (10)(D)</u>] [<u>Environmental Systems: (2)(F)(J), (3)(A), (7)(B)</u>] [<u>Integrated Physics and Chemistry: (2)(E), (3)(A),(4)(D) (3)(C), (6)(C)-(E), (7)(C)-(F)</u>] [<u>Physics: (2)(I)-(J), (3)(A)-(C)(4)(D), (5)(B)(C), (5)(F),(6)(A)(C), (7)(B), (8)(C)</u>]	[<u>Accounting II: (2)(G), (4)(I), (5)(L)-(N), (6)(H)</u> [<u>Applied Mathematics for Technical Professionals: (1)(G)</u> [<u>Biotechnology I: (7)(C), (8)(E)</u> [<u>Biotechnology II:(6)(D)</u> [<u>Digital Electronics: (2)(G), (8)(A)-(F), (9)(A)-(F), (10)(A)-(K), (11)(A)-(G), (12)(A)-(B), (12)(E), (12)(H)</u> [<u>Engineering Mathematics: (2)(G), (6)(B)-(C), (7)(C), (9)(B)-(D), (10)(B), (10)(F)-(G), (10)(I), (10)(K), (11)(B)-(E)</u> [<u>Engineering Science: (12)(E)</u> [<u>Financial Mathematics: (2)(G)</u> [<u>Manufacturing Engineering Technology II: (2)(G)</u> [<u>Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(G), (4)(G), (5)(C)</u> [<u>Mathematics for Medical Professionals: (1)(C), (2)(G)</u> [<u>Principles of Technology: (12)(D), (13)(B)</u> [<u>Robotics II: (2)(G), (6)(B), (7)(A)-(K), (8)(A)-(J), (10)(B)-(G)(10)(D), (10)(F)-(G)], (11)(C), (12)(E)-(G)]</u>	Discrete Mathematics for Computer Science: (1)(A)-(B), (3)(A)-(B), (4)(A<u>B</u>)-(F), (4)(H), (4)(J), (4)(L)-(O), (6)(A)-(G), (6)(I), (6)(<u>L</u>)-(M) Robotics Programming and Design: (1)(G), <u>(3)(D)</u>, (4)(A)-(E), (5)(A)-(G), (7)(B), (7)(H), (7)(M), (7)(P)

	(2)(E), (2)(G), (3)(B)-(H), (4)(G)-(L), (4)(O), (4)(Q) (4)(S) Discrete Mathematics for Problem Solving: (2)(K), (6)(H), (7)(A), (7)(G) Statistics: (6)(A)-(B), (6)(D), (6)(F), (6)(H)-(J) Algebraic Reasoning: (2)(A), (2)(B)	Grade 6: (6)(B), (8)(C) Grade 8: (6)(A) Chemistry: (6)(C), (8)(B)-(E), (9)(A), (10)(C)-(D), (10)(H), (11)(C)-(D) Integrated Physics and Chemistry: (4)(A), (4)(D), Physics: (2)(J), (3)(E), (4)(A)-(D), (5)(B)-(C), (5)(F), (6)(A)-(D), (7)(B), (7)(E), (8)(C)-(D) Aquatic Science: (2)(I), (4)(B-C), (5)(A), (6)(B), (7)(A), (8)(A), (11)(A), (12)(A) Astronomy: (7)(B), (8)(B), (9)(C), (11)(C) Earth and Space Science: (2)(H), (5)(B), (7)(B), (10)(D) Environmental Systems: (2)(J), (7)(B)	[Scientific Research and Design: (6)(D)] [Small Engine Technology II: (6)(B)] [Statistics and Business Decision Making: (2)(G), (7)(B)] Accounting II: (4)(E), (4)(I), (6)(H) Biotechnology I: (8)(E) Biotechnology II: (8)(D)(8)(G), (12)(B) (13)(D), (14)(B) Engineering Mathematics: (3)(B), (5)(A)-(B), (10)(D) Engineering Science: (12)(E) Principles of Technology: (12)(C)-(D) Scientific Research and Design: (4)(G),(8)(E), (8)(G) Small Engine Technology II: (6)(B) Statistics and Business Decision Making: (7)(B)	
[VII.[VIII.]B.2. Use various types of reasoning]	[Grade 6: (4)(B)] [Algebra I: (12)(C)-(D)] [Geometry: (4)(B)-(D), (5)(A), (5)(D), (6)(A)-(E), (8)(A), (12)(A), (12)(D) (E)] [Precalculus: (5)(B), (5)(M)] [Mathematical Models with Applications: (3)(A)-(D), (4)(A) (C), (6)(A), (9)(A) (C), (9)(E)] [Advanced Quantitative Reasoning: (2)(B), (2)(E), (3)(B) (H), (4)(G) (L), (4)(O), (4)(Q), (4)(S)] [Discrete Mathematics for Problem Solving: (2)(K), (6)(H), (7)(A), (7)(G)] [Statistics: (6)(A)-(B), (6)(F), (6)(H)-(J)] [Algebraic Reasoning: (2)(A)]	[Grades 6 - 8: (3)(A)] [Grade 8: (6)(A)-(C), (7)(A)-(C)] [Aquatic Science: (3)(A)] [Astronomy: (3)(A)] [Biology: (3)(A)] [Chemistry: (3)(A)] [Earth and Space Science: (3)(A)] [Environmental Systems: (3)(A)] [Integrated Physics and Chemistry: (3)(A), (3)(C)] [Physics: (3)(A)]	Digital Electronics: (8)(A)-(F), (9)(A)-(F), (10)(A)-(K), (11)(A)-(G), (12)(A)-(B), (12)(E), (12)(H) Engineering Mathematics: (6)(B)-(C), (7)(C), (9)(B)-(D), (10)(B), (10)(F)-(G), (10)(I), (10)(K), (11)(B) (E) Mathematical Applications in Agriculture, Food, and Natural Resources: (4)(G); Mathematics for Medical Professionals: (1)(C); Robotics II: (6)(B), (7)(A) (K), (8)(A) (J), (10)(B)-(G), (11)(C), (12)(E)-(F) Principles of Technology: (12)(D), (13)(B) Engineering Science: (12)(E) Biotechnology I: (7)(C), (8)(E) Biotechnology II:(6)(D) Scientific Research and Design: (6)(D) Small Engine Technology II: (6)(B)	Discrete Mathematics for Computer Science: (1)(A)-(B), (3)(A)-(B), (4)(A)-(F), (4)(H), (4)(J), (4)(L)-(O), (6)(A)-(G), (6)(I), (6)(L) (M) Robotics Programming and Design: (3)(D), (4)(A) (E), (5)(A) (G), (7)(B), (7)(H), (7)(M), (7)(P)
C. Logical reasoning [Real world problem solving]			
VII.[VIII.]C.1. Develop and evaluate convincing arguments. [Formulate a solution to a real world situation based on the solution to a mathematical problem.]	[Kindergarten - Grade 12: (1)(A)] [Grade 4: (10)(B)] [Grade 7: (4)(D), (5)(C), (10)(C), (13)(A), (13)(C)] [Grade 8: (8)(C)] [Algebra I: (5)(A) (C), (8)(B), (9)(C), (9)(E)] [Algebra II: (5)(B)] [Precalculus: (5)(C), (5)(H)-(L), (5)(N)] [Mathematical Models with Applications: (2)(A)-(C), (5)(A)-(C), (6)(B)-(D), (7)(A), (10)(A)] [Advanced Quantitative Reasoning: (3)(A) (H), (4)(L)-(O)] [Discrete Mathematics for Problem Solving: (2)(E)-(F), (2)(J) (K), (3)(F), (4)(J), (5)(A)-(B), (5)(I), (6)(D), (6)(F), (6)(K)] [Statistics: (2)(A)-(F), (3)(A) (B), (5)(C), (6)(C)-(G)] [Algebraic Reasoning: (2)(D), (3)(C)-(F), (5)(D)-(E), (6)(A)-(C), (7)(D)-(E)] Kindergarten - Grade 12: (1)(G) Geometry: (4)(B)-(D), (5)(A), (5)(C)-(D), (6)(A)-(E), (7)(B), (8)(A), (12)(A) Mathematical Models with Applications: (8)(C), (10)(B) Advanced Quantitative Reasoning: (2)(B), (2)(G), (4)(G), (4)(S)	[Grade 6: (6)(B), (8)(C)] [Grade 8: (6)(A)] [Aquatic Science: (2)(H)] [Astronomy: (2)(G)] [Biology: (2)(G)] [Chemistry: (2)(G)-(H)] [Earth and Space Science: (2)(G)-(H)] [Environmental Systems: (2)(I)-(J)] [Physics: (2)(L), (3)(F), (4)(D), (5)(B)-(C), (5)(F), (6)(A), (6)(C)] Grades 1 - 2: (2)(E) Grades 3: (2)(F), (3)(A) Grade 4: (2)(F), (3)(A) Grade 5: (2)(F), (3)(A) Grade 6 - 8: (2)(E), (3)(A) Aquatic Science: (2)(J), (3)(A) Astronomy: (2)(H), (3)(A) Biology: (2)(H), (3)(A) Chemistry: (2)(I), (3)(A) Earth and Space Science: (2)(I), (3)(A) Environmental Systems: (2)(K), (3)(A) Integrated Physics and Chemistry: (2)(E), (3)(A) Physics: (2)(I), (3)(A)-(C)	[Accounting II: (1)(B), (1)(E), (2)(A), (3)(C)-(D), (3)(F), (3)(I), (4)(C)-(G), (4)(I), (5)(B), (5)(D)-(F), (5)(I), (5)(K)-(P), (6)(D)(i)-(iii), (6)(E)(iii), (6)(E)(v)-(vi), (6)(G)(iii)-(iv), (6)(H), (6)(K)(i)-iii), (6)(K)(vi)-(vii) ; Applied Mathematics for Technical Professionals: (1)(A), (2)(A), (2)(D), (2)(F)-(H), (3)(B)-(H), (4)(A), (4)(E)-(F), (5)(B), (5)(D)-(F), (6)(B) Digital Electronics: (2)(A); Engineering Mathematics: (2)(A), (3)(B) (D), (4)(A) (M), (5)(A)-(B), (6)(A)-(O), (7)(A), (7)(F)-(I), (8)(A), (8)(D), (8)(G)-(H), (8)(L)-(S), (9)(A), (9)(E)-(H), (10)(A)-(D), (10)(F)-(H), (10)(J), (10)(M)-(N), (11)(A)-(B), (11)(F); Financial Mathematics: (2)(A), (3)(C), (3)(F), (3)(H)-(L), (4)(A)-(C), (4)(E)-(I), (4)(K), (5)(B), (5)(E)-(F), (6)(A)-(E), (7)(A)-(G), (7)(I), (7)(K)-(L), (8)(A)-(F), (9)(A)-(D), (10)(A)-(F), (11)(A)-(D), (12)-(14), (15)(A), (15)(C), (17)(C), (17)(F)-(G); Manufacturing Engineering Technology II: (2)(A); Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(A), (4)(A)-(F), (5)(F), (6)(A)-(B), (7)(A)-(C), (8)(A)-(B), (9)(A)-(B), (10)(A)-(B), (11)(A)-(C), (12)(A)-(C); Mathematics for Medical Professionals: (2)(A), (3)(A), (3)(C), (3)(E), (4)(A)-(B), (4)(D)-(F), (5)(C), (6)(F), (7)(A)-(D); Robotics II: (2)(A), (4)(A)-(B), (7)(A)-(K), (8)(A)-(J), (11)(D), (12)(A), (12)(D); Statistics and Business Decision Making: (2)(A), (6)(A), (6)(C), (7)(D), (10)(B), (11)(B), (12)-(13), (14)(A)-(C), (15)(A), (16)(B), (16)(D)-(H), (17)-(19), (20)(A)-(C), (21); Forestry and Woodland Ecosystems: (4)(A)(B)(D); Engineering Design and Problem Solving: (5)(K), (8)(A)-(I), (9)(A)-(I); Engineering Science: (6)(A), (15)(A)-(H), (16)(A)-(D); Principles of Manufacturing: (3)(C); Diversified Manufacturing I: (10)(C); Diversified Manufacturing II: (9)(A), (11)(C); Manufacturing Engineering Technology I: (3)(A); Metal Fabrication and Machining II: (3)(C), (8)(A); Precision Metal Manufacturing II: (11)(A)-(H), (12)(A)-(G); Precision Metal Manufacturing II Lab: (6)(A)-(H), (7)(A)-(G); Introduction to Welding: (5)(A); Small Engine Technology I: (5)(D), (6)(A)(C)-(E); Small Engine Technology II: (5)(C), (6)(B), (7)(E)-(G); Automotive Technology II: Business Information Management II: (8)(A-B)]	Discrete Mathematics for Computer Science: (1)(A)-(B), (3)(A)-(B), (4)(E)-(F), (4)(L)-(N), (6)(A)-(D), (6)(H)-(L) Robotics Programming and Design: (1)(A), (2)(A), (2)(C), (2)(E), (2)(H), (3)(A)-(B), (3)(D)-(E), (4)(C), (5)(A)-(G), (7)(E), (7)(P) Discrete Mathematics for Computer Science: (1)(A)-(B), (3)(A)-(B), (4)(B)-(F), (4)(H), (4)(J), (4)(L)-(O), (6)(A)-(D), (6)(I), (6)(M) Robotics Programming and Design: (1)(G)

			Accounting II: (2)(G), (4)(I), (5)(L)-(N), (6)(H)Applied Mathematics for Technical Professionals: (1)(G) Digital Electronics: (2)(G)Engineering Mathematics: (2)(G)Financial Mathematics: (2)(G)Manufacturing Engineering Technology II: (2)(G)Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(G), (5)(C) Mathematics for Medical Professionals: (2)(G)Robotics II: (2)(G), (10)(D), (10)(F)-(G), (12)(E)-(G)Statistics and Business Decision Making: (2)(G), (7)(B)	
VII.[VIII.]C.2. Understand attributes and relationships with inductive and deductive reasoning. [Use a function to model a real-world situation.]	[Kindergarten - Grade 12: (1)(A), (1)(D)] [Grade 4: (10)(B)] [Grade 7: (4)(D), (5)(C), (10)(C), (13)(A), (13)(C) [Grade 8: (5)(D)-(E)] [Algebra I: (2)(D), (3)(B), (3)(G), (5)(A)-(C), (8)(B), (9)(B)-(C)] [Algebra II: (5)(B), (6)(H), (8)(B)] [Precalculus: (2)(N)-(P), (4)(G)-(H), (4)(J)-(K), (5)(H)] [Mathematical Models with Applications: (2)(A), (3)(A), (3)(C)-(D), (5)(A)-(C), (6)(A)-(D), (7)(A)] [Advanced Quantitative Reasoning: (2)(C)-(E), (3)(A)-(H)] [Statistics: (7)(B)-(D),] [Algebraic Reasoning: (2)(D), (3)(D)-(F), (5)(D)-(E), (6)(B), (7)(B), (7)(D)-(E)] Grade 6: (4)(B) Algebra I: (12)(C)-(D) Geometry: (4)(B)-(D), (5)(A), (5)(D), (6)(A)-(E), (8)(A), (12)(A), (12)(D)-(E) Precalculus: (5)(B), (5)(M) Mathematical Models with Applications: (3)(A)-(D), (4)(A)-(C), (6)(A), (9)(A)-(C), (9)(E) Advanced Quantitative Reasoning: (2)(B), (2)(E), (3)(B)-(H), (4)(G)-(L), (4)(O), (4)(Q), (4)(S) Discrete Mathematics for Problem Solving: (2)(K), (6)(H), (7)(A), (7)(G) Statistics: (6)(A)-(B), (6)(F), (6)(H)-(J) Algebraic Reasoning: (2)(A)	[Aquatic Science: (2)(H); Astronomy: (2)(G); Earth and Space Science: (2)(I); Environmental [Systems: (2)(I); Physics: (2)(L), (3)(F)] Kindergarten: (2)(E), (5)(A)-(B) Grade 1: (2)(E), (5)(A)-(C) Grade 2: (2)(E), (5)(A)-(D) Grade 3: (2)(F), (3)(A)-(B), (5)(A)-(D) Grade 4: (2)(F), (3)(A)-(B), (5)(A)-(B) Grade 5: (2)(F), (3)(A)-(B), (5)(A)-(C) Grades 6: (3)(A)-(C), (5)(C), (6)(A), (10)(B) Grade 7: (3)(A)-(C), (6) Grade 8: (3)(A)-(C), (6)(A)-(C), (6)(E), (7)(A)-(C) Aquatic Science: (3)(A) Astronomy: (3)(A) Biology: (3)(A), (3)(E) Chemistry: (3)(A) Earth and Space Science: (3)(A) Environmental Systems: (3)(A) Integrated Physics and Chemistry: (3)(A), (3)(C) Physics: (3)(A)	Accounting II: (2)(A), (2)(D)Applied Mathematics for Technical Professionals: (1)(A), (1)(D), (2)(B), (2)(G)-(H), (5)(A), (5)(D)-(E), (6)(C)Digital Electronics: (2)(A), (2)(D), (7)(H), (7)(L)-(O), (8)(A)-(F), (9)(A)-(F), (10)(A)-(K), (11)(A)-(J), (12)(A)-(H)Engineering Mathematics: (2)(A), (2)(D), (6)(A)-(O), (7)(F), (9)(A), (9)(E)-(H), (11)(F)Financial Mathematics: (2)(A), (2)(D), (4)(F), (6)(C)-(D), (6)(F)Manufacturing Engineering Technology II: (2)(A), (2)(D)Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(A), (2)(D), (6)(B)Mathematics for Medical Professionals: (2)(A), (2)(D), (4)(A)-(C), (4)(E)Robotics II: (2)(A), (2)(D), (7)(H)-(K), (8)(A)-(J), (11)(B)Statistics and Business Decision Making: (2)(A), (2)(D), (20)(B)-(C), (21), (22) Engineering Science: (10)(G)-(H), (13)(A)-(E); (16)(C)-(D); Principles of Information Technology: (8)(C) Digital Electronics: (8)(A)-(F), (9)(A)-(F), (10)(A)-(K), (11)(A)-(G), (12)(A)-(B), (12)(E), (12)(H) Engineering Mathematics: (6)(B)-(C), (7)(C), (9)(B)-(D), (10)(B), (10)(F)-(G), (10)(I), (10)(K), (11)(B)-(E) Mathematical Applications in Agriculture, Food, and Natural Resources: (4)(G); Mathematics for Medical Professionals: (1)(C); Robotics II: (6)(B), (7)(A)-(K), (8)(A)-(J), (10)(B)-(G), (11)(C), (12)(E)-(F) Principles of Technology: (12)(D), (13)(B) Engineering Science: (12)(E) Biotechnology I: (7)(C), (8)(E) Biotechnology II:(6)(D) Scientific Research and Design: (6)(D) Small Engine Technology II: (6)(B)	Discrete Mathematics for Computer Science: (1)(A)-(B)Robotics Programming and Design: (1)(A), (1)(D), (4)(B)-(C), (5)(A)-(G), (7)(P) Discrete Mathematics for Computer Science: (1)(A)-(B), (3)(A)-(B), (4)(A)-(F), (4)(H), (4)(J), (4)(L)-(O), (6)(A)-(G), (6)(I), (6)(L)-(M) Robotics Programming and Design: (3)(D), (4)(A)-(E), (5)(A)-(G), (7)(B), (7)(H), (7)(M), (7)(P)
[VIII.C.3. Evaluate the problem-solving process.]	[Kindergarten - Grade 12: (1)(B)] [Mathematical Models with Applications: (8)(C)] [Advanced Quantitative Reasoning: (3)(B), (4)(Q), (4)(S)] [Statistics: (2)(G), (3)(C)-(D), (6)(G)-(H), (7)(C)-(D)] [Algebraic Reasoning: (7)(C)]		[Accounting II: (2)(B); Applied Mathematics for Technical Professionals: (1)(B); Digital Electronics: (2)(B), (7)(M), (10)(J), (12)(B); Engineering Mathematics: (2)(B); Financial Mathematics: (2)(B), (6)(E); Manufacturing Engineering Technology II: (2)(B), (4)(B), (9)(C); Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(B); Mathematics for Medical Professionals: (2)(B); Robotics II: (2)(B), (6)(B), (10)(C)-(G), (11)(C)-(D), (12)(E)-(F); Statistics and Business Decision Making: (2)(B), (4)(A)-(E), (5), (6)(C), (7)(B), (15)(B); Robotics I: (4)(C)-(D); Engineering Design and Problem Solving: (5)(K), (8)(A)-(I), (9)(A)-(I); Engineering Science: (6)(A), (15)(A)-(H), (16)(A)-(D); Diversified Manufacturing II: (9)(B), Precision Metal Manufacturing I: (3)(E); Precision Metal Manufacturing II: (13)(A)-(C); Small Engine Technology II: (6)(B); Automotive Technology II: Automotive Service: (2)(B)]	Discrete Mathematics for Computer Science: (3)(A)-(B) Robotics Programming and Design: (1)(B), (2)(D), (2)(F), (3)(F)-(H), (4)(A), (7)(T)

D. Real-world problem solving				
VII. [VIII.]D.1. Interpret results of the mathematical problem in terms of the original real-world situation.	Kindergarten - Grade 12: (1)(A) Grade 4: (10)(B) Grade 7: (4)(D), (5)(C), (10)(C), (13)(A), (13)(C) Grade 8: (8)(C) Algebra I: (5)(A)-(C), (8)(B), (9)(C), (9)(E) Algebra II: (5)(B) Precalculus: (5)(C), (5)(H)-(L), (5)(N) Mathematical Models with Applications: (2)(A)-(C), (5)(A)-(C), (6)(B)-(D), (7)(A), (10)(A) Advanced Quantitative Reasoning: (3)(A)-(H), (4)(L)-(O) Discrete Mathematics for Problem Solving: (2)(E)-(F), (2)(J)-(K), (3)(F), (4)(J), (5)(A)-(B), (5)(I), (6)(D), (6)(F), (6)(K) Statistics: (2)(A)-(F), (3)(A)-(B), (5)(C), (6)(C)-(G) Algebraic Reasoning: (2)(D), (3)(C)-(F), (5)(D)-(E), (6)(A)-(C), (7)(D)-(E)	Grade 6: (6)(B), (8)(C) Grade 8: (6)(A) Aquatic Science: (2)(H) Astronomy: (2)(G) Biology: (2)(G) Chemistry: (2)(G)-(H), (8)(G), (9)(A), (10)(H), (11)(D) Earth and Space Science: (2)(G)-(H) Environmental Systems: (2)(I)-(J) Integrated Physics and Chemistry: (4)(A), (4)(D), (5)(A)-(B)-(F), Physics: (2)(J), (3)(E), (4)(D), (5)(B)-(C), (5)(F), (6)(A), (6)(C)	Accounting II: (1)(B), (1)(E), (2)(A), (3)(C)-(D), (3)(F), (3)(I), (4)(C)-(G), (4)(I), (5)(B), (5)(D)-(F), (5)(I), (5)(K)-(P), (6)(D)(i)-(iii), (6)(E)(iii), (6)(E)(v)-(vi), (6)(G)(iii)-(iv), (6)(H), (6)(K)(i)-(iii), (6)(K)(vi)-(vii) ; Applied Mathematics for Technical Professionals: (1)(A), (2)(A), (2)(D), (2)(F)-(H), (3)(B)-(H), (4)(A), (4)(E)-(F), (5)(B), (5)(D)-(F), (6)(B) Digital Electronics: (2)(A); Engineering Mathematics: (2)(A), (3)(B)-(D), (4)(A)-(M), (5)(A)-(B), (6)(A)-(O), (7)(A), (7)(F)-(I), (8)(A), (8)(D), (8)(G)-(H), (8)(L)-(S), (9)(A), (9)(E)-(H), (10)(A)-(D), (10)(F)-(H), (10)(J), (10)(M)-(N), (11)(A)-(M); Financial Mathematics: (2)(A), (3)(C), (3)(F), (3)(H)-(L), (4)(A)-(C), (4)(E)-(I), (4)(K), (5)(B), (5)(E)-(F), (6)(A)-(E), (7)(A)-(G), (7)(I), (7)(K)-(L), (8)(A)-(F), (9)(A)-(D), (10)(A)-(F), (11)(A)-(D), (12)-(14), (15)(A), (15)(C), (17)(C), (17)(F)-(G); Manufacturing Engineering Technology II: (2)(A); Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(A), (4)(A)-(F), (5)(F), (6)(A)-(B), (7)(A)-(C), (8)(A)-(B), (9)(A)-(B), (10)(A)-(B), (11)(A)-(C), (12)(A)-(C); Mathematics for Medical Professionals: (2)(A), (3)(A), (3)(C), (3)(E), (4)(A)-(B), (4)(D)-(F), (5)(C), (6)(F), (7)(A)-(D); Robotics II: (2)(A), (4)(A)-(B), (7)(A)-(K), (8)(A)-(J), (11)(D), (12)(A), (12)(D); Statistics and Business Decision Making: (2)(A), (6)(A), (6)(C), (7)(D), (10)(B), (11)(B), (12)-(13), (14)(A)-(C), (15)(A), (16)(B), (16)(D)-(H), (17)-(19), (20)(A)-(C), (21); Forestry and Woodland Ecosystems: (4)(A)(B)(D); Engineering Design and Problem Solving: (5)(K), (8)(A)-(I), (9)(A)-(I); Engineering Science: (6)(A), (15)(A)-(H), (16)(A)-(D); Principles of Manufacturing: (3)(C); Diversified Manufacturing I: (10)(C); Diversified Manufacturing II: (9)(A), (11)(C); Manufacturing Engineering Technology I: (3)(A); Metal Fabrication and Machining II: (3)(C), (8)(A); Precision Metal Manufacturing II: (11)(A)-(H), (12)(A)-(G); Precision Metal Manufacturing II Lab: (6)(A)-(H), (7)(A)-(G); Introduction to Welding: (5)(A); Small Engine Technology I: (5)(D), (6)(A)(C)-(E); Small Engine Technology II: (5)(C), (6)(B), (7)(E)-(G); Automotive Technology II: Business Information Management II: (8)(A-B)	Discrete Mathematics for Computer Science: (1)(A)-(B), (3)(A)-(B), (4)(E)-(F), (4)(L)-(N), (6)(A)-(D), (6)(H)-(L) Robotics Programming and Design: (1)(A), (2)(A), (2)(C), (2)(E), (2)(H), (3)(A)-(B), (3)(D)-(E), (4)(C), (5)(A)-(G), (7)(E), (7)(P)
VII. [VIII.]D.2. Evaluate the problem-solving process.	Kindergarten - Grade 12: (1)(B) Mathematical Models with Applications: (8)(C) Advanced Quantitative Reasoning: (3)(B), (4)(Q), (4)(S) Statistics: (2)(G), (3)(C)-(D), (6)(G)-(H), (7)(C)-(D) Algebraic Reasoning: (7)(C)		Accounting II: (2)(B); Applied Mathematics for Technical Professionals: (1)(B); Digital Electronics: (2)(B), (7)(M), (10)(J), (12)(B); Engineering Mathematics: (2)(B); Financial Mathematics: (2)(B), (6)(E); Manufacturing Engineering Technology II: (2)(B), (4)(B), (9)(C); Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(B); Mathematics for Medical Professionals: (2)(B); Robotics II: (2)(B), (6)(B), (10)(C)-(G), (11)(C)-(D), (12)(E)-(F); Statistics and Business Decision Making: (2)(B), (4)(A)-(E), (5), (6)(C), (7)(B), (15)(B); Robotics I: (4)(C)-(D); Engineering Design and Problem Solving: (5)(K), (8)(A)-(I), (9)(A)-(I); Engineering Science: (6)(A), (15)(A)-(H), (16)(A)-(D); Diversified Manufacturing II: (9)(B), Precision Metal Manufacturing I: (3)(E); Precision Metal Manufacturing II: (13)(A)-(C); Small Engine Technology II: (6)(B); Automotive Technology II: Automotive Service: (2)(B)	Discrete Mathematics for Computer Science: (3)(A)-(B) Robotics Programming and Design: (1)(B), (2)(D), (2)(F), (3)(F)-(H), (4)(A), (7)(T)
VIII. [IX.] Communication and Representation				
A. Language, terms, and symbols of mathematics				
VIII. [IX.] A.1. Use mathematical symbols, terminology, and notation to represent given and unknown information in a problem.	Kindergarten - Grade 12: (1)(D), (1)(F) Grade 1: (5)(D), (5)(F) Grade 2: (7)(C) Grade 4: (5)(A), (7)(E) Grade 5: (4)(B) Grade 6: (8)(C), (9)(A), (10)(A) Grade 7: (8)(A), (10)(A)-(C), (11)(A), (11)(C) Grade 8: (8)(A)-(C) Algebra I: (2)(A)-(I), (5)(A)-(C), (6)(C), (9)(B)-(C) Algebra II: (3)(A), (3)(E), (4)(E), (5)(B), (6)(D), (6)(H), (6)(L) Geometry: (6)(A)-(D) Precalculus: (5)(B), (5)(D), (5)(H)-(I), (5)(N) Mathematical Models with Applications: (2)(A)-(C), (5)(A)-(C), (6)(B)-(D), (7)(A), (7)(C), (10)(A) Advanced Quantitative Reasoning: (2)(C)-(E), (2)(H), (3)(A)-(H) Discrete Mathematics for Problem Solving: (2)(B)-(K), (3)(A)-(G), (5)(A)-(B), (7)(A)-(B), (7)(E)-(G) Statistics: (3)(B), (4)(B), (4)(F), (5)(A), (5)(C), (6)(C)-(D), (6)(G), (7)(B)-(D) Algebraic Reasoning: (2)(C)-(D), (3)(D)-(F), (5)(D)-(E), (6)(B), (7)(B)-(E)	Grade 6: (6)(B), (8)(C) Grade 8: (6)(A) Aquatic Science: (2)(I) Earth and Space Science: (2)(H) Integrated Physics and Chemistry: (4)(A)-(F), (5)(A)-(B), (5)(G) Chemistry: (2)(G), (6)(B), (9)(A), (11)(D) Physics: (3)(EE), (4)(B)-(D), [(4)(E),] (5)(B)-(C), (5)(F), (6)(C)-(D), (7)(B)	Accounting II: (1)(A), (2)(D), (2)(F); Applied Mathematics for Technical Professionals: (1)(D), (1)(F), (2)(B)-(E), (2)(G)-(H), (3)(A), (3)(E), (3)(K), (5)(A), (5)(D)-(E), (6)(A), (6)(C)-(D), (7)(E); Digital Electronics: (1)(C), (2)(D), (2)(F), (7)(L), (7)(N)-(O), (8)(B)-(F), (9)(A)-(E), (10)(A)-(I), (11)(A)-(H), (11)(J), (12)(A)-(B); Engineering Mathematics: (1)(C), (2)(D), (2)(F), (3)(A)-(D), (4)(A)-(M), (5)(A)-(B), (6)(A), (6)(E)-(F), (6)(I), (6)(M), (8)(M), (8)(R), (9)(A), (9)(E), (9)(H); Financial Mathematics: (1)(A), (2)(D), (2)(F) Manufacturing Engineering Technology II: (1)(F), (2)(D), (2)(F) Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(D), (2)(F), (4)(B), (4)(F), (5)(D), (6)(D); Mathematics for Medical Professionals: (1)(A), (2)(D), (2)(F), (3)(C), (4)(A)-(F), (7)(A)-(C); Robotics II: (1)(J), (2)(D), (2)(F), (10)(D)-(E), (12)(G); Statistics and Business Decision Making: (1)(A), (2)(D), (2)(F), (7)(A), (20)(B)-(C), (21), (22)(A)-(D); Engineering Science: (15)(A)-(H), (16)(A)-(D); Precision Metal Manufacturing II Lab: (6)(D)-(H)	Discrete Mathematics for Problem-Solving: (1)(A)-(B), (2)(A), (3)(A)-(B), (4)(A)-(F), (4)(H), (4)(J)-(O), (6)(A)-(C), (6)(H)-(L) Robotics Programming and Design: (1)(D), (1)(F), (3)(D)-(E), (3)(H)
VIII. [IX.] A.2. Use mathematical language to represent and communicate the mathematical concepts in a problem.	Kindergarten - Grade 12: (1)(D), (1)(F) Kindergarten: (3)(C) Grade 1: (3)(E) Grade 2: (3)(B), (6)(A)-(B) Grade 6: (9)(C) Grade 7: (8)(B) Grade 8: (8)(B) Algebra I: (3)(C), (7)(A), (9)(B) Algebra II: (2)(A), (2)(C) Geometry: (4)(A), (12)(D) Mathematical Models with Applications: (2)(A)-(C), (5)(A)-(C), (6)(B)-(D), (7)(A), (7)(C), (9)(D)	Grade 6: (6)(B), 8(C) Grade 8: (6)(B) Aquatic Science: (2)(J) Earth and Space Science: (2)(H) Environmental Systems: (2)(K) Integrated Physics and Chemistry: (2)(E) Physics: (2)(L)-J), (3)(EE)	Accounting II: (1)(C), (2)(D), (2)(F), (3)(B), (3)(E)-(H), (4)(A)-(C), (4)(H)-(I), (5)(B), (5)(G)-(J), (5)(L)-(N), (5)(P), (6)(A)-(C), (6)(E)-(J), (6)(L)-(R)Applied Mathematics for Technical Professionals: (1)(D), (1)(F), (6)(D), (7)(D)-(E) Digital Electronics: (1)(C), (2)(D), (2)(F), (7)(L), (8)(F), (12)(A)-(B)Engineering Mathematics: (1)(C), (2)(D), (2)(F), (3)(A), (7)(B)-(E), (8)(B)-(C), (8)(E)-(F), (8)(K), (10)(L)Financial Mathematics: (1)(A), (2)(D), 2(F), (15)(A)Manufacturing Engineering Technology II: (1)(F), (2)(D), (2)(F)Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(D), (2)(F), (5)(D), (6)(D)Mathematics for Medical Professionals: (1)(A), (2)(D), (2)(F), (3)(C), (4)(A)-(F), (6)(A)-(C), (6)(H)-(K), (7)(D)Robotics II: (1)(J), (2)(D), (2)(F), (10)(D)-(E), (12)(G)Statistics and Business Decision Making: (1)(A), (2)(D), (2)(F), (7)(A)-(B), (8)(A)-(E), (10)(A)-(C), (11)(A)-(B), (12)-(13), (15)(B), (16)(A), (16)(C), (16)(E), (16)(G)-(H), (17), (20)(A)Principles of Technology: (4)(F); Engineering Design and Problem Solving:	Discrete Mathematics for Problem-Solving: (1)(A)-(B), (4)(A)-(F), (4)(H), (4)(J)-(O), (6)(H)-(K)Robotics Programming and Design: (1)(D), (1)(F), (3)(D)-(E), (3)(H)

	Advanced Quantitative Reasoning: (2)(H), (4)(R), (4)(T) Discrete Mathematics for Problem Solving: (2)(A), (2)(L), (3)(A)-(G), (4)(B), (4)(D)-(I), (5)(C), (5)(E)-(K), (6)(C), (6)(E), (6)(H)-(J), (7)(D)-(G) Statistics: (2)(F), (3)(C)-(D), (4)(C)-(F), (5)(B), (5)(D), (6)(A)-(B), (6)(F), (6)(H), (6)(J), (7)(E) Algebraic Reasoning: (3)(A)-(B), (3)(F), (4)(A)-(B), (7)(B)		(5)(A)-(K); Engineering Science: (10)(A)-(J); (12)(A)-(E); Biotechnology II:(4)(G); Scientific Research and Design: (4)(G); Principles of Information Technology: (9)(F); Diversified Manufacturing II: (9)(A)	
VIII. [IX.] A.3. Use mathematical [mathematics as a] language for reasoning, problem solving, making connections, and generalizing.	Kindergarten - Grade 12: (1)(D), (1)(F)-(G) Grade 6: (4)(C)-(D), (8)(A) Grade 7: (8)(A)-(C) Grade 8: (8)(A)-(C) Algebra I: (2)(A)-(D), (4)(C), (5)(A)-(C), (8)(B), (9)(C), (9)(E) Algebra II: (3)(A), (3)(E), (4)(E), (5)(B), (6)(L) Geometry: (6)(A)-(B), (6)(D)-(E), (7)(A)-(B), (8)(A)-(B), (9)(A)-(B), (10)(B) Precalculus: (2)(D), (3)(C), (4)(D), (5)(D), (5)(H)-(L), (5)(N) Mathematical Models with Applications: (2)(A)-(C), (3)(A), (3)(C)-(D), (5)(B)-(D), (7)(A), (7)(C), (9)(A)-(B), (9)(D)-(E) Advanced Quantitative Reasoning: (2)(B), (2)(G)-(H), (4)(G)-(T) Discrete Mathematics for Problem Solving: (3)(A), (3)(E)-(G), (4)(A)-(I), (5)(A)-(K), (6)(A)-(I), (6)(K), (7)(D)-(G) Statistics: (2)(F), (3)(C)-(D), (4)(C)-(F), (5)(D), (6)(A)-(B), (6)(E)-(F), (6)(H)-(J), (7)(C)-(F) Algebraic Reasoning: (2)(A), (3)(C)-(F), (4)(A)-(B), (5)(D)-(E), (7)(B)-(E)	Grade 6: (6)(B), (8)(C) Grade 8: (6)(B)-(C) Integrated Physics and Chemistry: (2)(E), (4)(F), (5)(A)-(I), [(6)(A),] (6)(C)-(D) [(E)], [(7)(D)] 7(E)-(F) Physics: (2)(LJ), (3)(FE), (4)(B)-(DC), (4)(E)-(F), (5)(A)-(C), (5)(G)-(H), (6)(D)-(G), (7)(A)-(C), (7)(E)-(F), (8)(A)-(C)	Accounting II: (1)(A), (2)(D), (2)(F)-(G), (3)(B), (3)(E)-(F),(4)(C), (4)(H)-(I), (5)(B), (5)(L)-(N), (5)(P), (6)(E)(i)-(vi), (6)(G)(i)-(iv), (6)(R)(iv)-(v); Applied Mathematics for Technical Professionals: (1)(D), (1)(F)-(G), (2)(B)-(E), (2)(G)-(H), (3)(A), (3)(E), (3)(K), (5)(A), (5)(D)-(E), (6)(A), (6)(C)-(D), (7)(E); Digital Electronics: (1)(C), (2)(D), (2)(F)-(G), (7)(L), (8)(B), (12)(A)-(B), (8)(B), (12)(A)-(B); Engineering Mathematics: (1)(C), (2)(D), (2)(F)-(G), (3)(A)-(D), (4)(A)-(M), (5)(A)-(B), (6)(A)-(O), (7)(A), (7)(F)-(I), (8)(A), (8)(D), (8)(G)-(H), (8)(M)-(S), (9)(A), (9)(E)-(H), (10)(A)-(D), (10)(F)-(H), (10)(J), (10)(M)-(N), (11)(B), (11)(F); Financial Mathematics: (1)(A), (2)(D), (2)(F)-(G), (3)(C), (3)(F)-(L), (4)(A)-(C), (4)(F)-(I), (4)(K), (5)(C)-(E), (6)(B)-(F), (6)(I), (7)(A)-(G), (8)(A)-(F), (9)(B), (10)(A)-(C), (11)(B)-(D), (12), (15)(A), (17)(C), (17)(F)-(G); Manufacturing Engineering Technology II: (1)(F), (2)(D), (2)(F)-(G); Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(D), (2)(F)-(G), (4)(B), (4)(G), (5)-(12); Mathematics for Medical Professionals: (1)(A), (2)(D)-(G), (3)(A), (3)(C), (4)(A)-(F), (5)(C), (6)(C)-(G), (7)(A)-(D); Robotics II: (1)(J), (2)(D), (2)(F), (6)(A)-(D), (7)(A)-(K), (8)(A)-(J), (9)(A)-(C), (10)(D)-(E), (11)(C)-(D), (12)(E)-(G); Statistics and Business Decision Making: (1)(A), (2)(D), (2)(F)-(G), (6)(A), (6)(C), (7)(A), (7)(D), (9), (10)(J), (12)-(13), (16)(A), (16)(C), (16)(E), (16)(G)-(H), (17)-(19), (20)(A); Principles of Technology: (4)(F); Engineering Design and Problem Solving: (5)(A)-(K); Engineering Science: (10)(A)-(J); (12)(A)-(E); Biotechnology II:(4)(G); Scientific Research and Design: (4)(G); Precision Metal Manufacturing II: (11)(D)-(H), (12)(D)-(G); Precision Metal Manufacturing II Lab: (6)(D)-(H), (7)(D)-(G); Food Science: (8)(C)	Discrete Mathematics for Problem-Solving: (1)(A)-(B), (2)(A), (3)(A)-(B), (4)(A)-(F), (4)(H), (4)(J)-(O), (6)(A)-(D), (6)(G) Robotics Programming and Design: (1)(D), (1)(F)-(G), (3)(E), (3)(H), (4)(A)-(E), (5)(A)-(G), (7)(C)-(T)
B. Interpretation of mathematical work				
VIII. [IX.] B.1. Model and interpret mathematical ideas and concepts using multiple representations.	Kindergarten - Grade 12: (1)(D)-(G) Kindergarten: (3)(A) Grade 1: (2)(B)-(C), (3)(A), (3)(E), (6)(G)-(H) Grade 2: (2)(A)-(B), (3)(A), (3)(C), (6)(A)-(B), (9)(A), (9)(F) Grade 3: (3)(A)-(B), (3)(E)-(F), (5)(A), (7)(A) Grade 4: (2)(B), (2)(E), (3)(A)-(B), (3)(E), (3)(G), (4)(C), (4)(E), (5)(C) Grade 5: (3)(D), (3)(F), (3)(H)-(J), (4)(B), (4)(G)-(H), (6)(A)-(B) Grade 6: (3)(C), (4)(E)-(F), (7)(C), (8)(B), (9)(B), (10)(A) Grade 7: (7), (8)(A), (8)(C), (11)(A) Grade 8: (5)(A)-(B), (5)(I) Algebra I: (2)(A)-(I), (7)(A), (9)(D), (12)(C)-(D) Algebra II: (2)(A), (8)(A) Precalculus: (2)(F), (2)(I)-(M), (3)(A), (3)(D)-(E), (4)(A)-(C), (4)(J), (5)(B) Mathematical Models with Applications: (3)(A), (3)(C)-(D), (7)(A), (7)(C), (10)(B) Advanced Quantitative Reasoning: (2)(H), (3)(A)-(H), (4)(P)-(R), (4)(T) Discrete Mathematics for Problem Solving: (2)(A)-(L), (3)(A)-(G), (6)(B)-(C), (7)(G) Statistics: (2)(E), (3)(B), (3)(D), (4)(A)-(C), (5)(A), (7)(B) Algebraic Reasoning: (2)(A)-(D), (3)(C)-(F), (4)(A)-(D), (6)(A), (7)(B), (7)(D)-(E)	Grade 6: (8)(D) Grade 8: (6)(A), (6)(C), (7)(A), (8)(D) Environmental Systems: (2)(I) Physics: (2)(J)-(L)(I)-(J), (3)(F), (4)(A), (4)(E)-(F)	Accounting II: (1)(A), (2)(D)-(G), (4)(I); Applied Mathematics for Technical Professionals: (1)(D)-(G), (2)(A), (2)(C), (2)(G)-(H), (3)(I)-(J), (4)(D), (5)(A), (5)(D)-(E), (6)(A), (6)(C)-(D), (7)(D); Digital Electronics: (1)(C), (2)(D)-(G), (7)(L), (8)(B), (12)(A)-(B); Engineering Mathematics: (1)(C), (2)(D)-(G), (3)(B), (4)(C), (4)(G), (11)(C)-(D); Financial Mathematics: (1)(A), (2)(D)-(G), (6)(C), (6)(F), (7)(A)-(B), (8)(A), (11)(B), (12), (17)(F); Manufacturing Engineering Technology II: (1)(F), (2)(D)-(G) Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(D)-(G), (4)(G), (5)(D), (5)(F), (6)(B), (6)(D), (7)(B), (7)(D), (8)(A), (8)(C), (9)(A), (9)(C), (10)(A), (10)(C), (11)(B), (12)(B); Mathematics for Medical Professionals: (1)(A), (2)(D)-(G), (4)(A)-(C), (4)(E); Robotics II: (1)(J), (2)(D)-(G), (10)(D)-(E), (11)(D), (12)(G); Statistics and Business Decision Making: (1)(A), (2)(D)-(G), (9), (12)-(13), (20)(B), (21); Principles of Technology: (4)(F); Engineering Design and Problem Solving: (5)(A)-(K); Engineering Science: (10)(A)-(J); (12)(A)-(E); Biotechnology II:(4)(G); Scientific Research and Design: (4)(G); Precision Metal Manufacturing I: (3)(D); Welding I: (5)(B); Small Engine Technology II: (7)(D); Food Science: (8)(C)	Discrete Mathematics for Problem-Solving: (1)(A)-(B), (3)(A)-(B), (4)(A), (6)(L)-(M) Robotics Programming and Design: (1)(D)-(G), (3)(D)-(E), (3)(H), (7)(C)

| VIII. [IX.] B.2. Summarize and interpret mathematical information provided orally, visually, or in written form within the given context. | Kindergarten - Grade 12: (1)(D)-(E), (1)(G)
Kindergarten: (8)(C)
Grade 3: (8)(A)
Grade 4: (5)(A), (9)(A
)Grade 5: (4)(E), (8)(A)-(B)
Grade 6: (12)(B)-(D), (13)(A)
Grade 7: (6)(F), (12)(B)
Grade 8: (8)(B)
Algebra I: (2)(A), (9)(B)
Algebra II: (3)(D), (4)(G), (5)(E), (8)(A)
Geometry: (6)(A), (6)(D)-(E), (7)(B), (8)(A)
Precalculus: (4)(I)-(K), (5)(C), (5)(K)-(L)
Mathematical Models with Applications: (2)(A)-(C), (8)(C), (10)(B)
Advanced Quantitative Reasoning: (2)(F), (2)(H), (3)(B)-(H), (4)(P)-(R), (4)(T)
Discrete Mathematics for Problem Solving: (2)(A)-(L), (3)(A)-(C), (3)(G), (4)(B), (4)(F), (4)(H), (5)(C), (5)(E), (5)(G)-(K), (6)(E), (6)(H)-(K), (7)(A)-(C), (7)(E)-(G)
Statistics: (2)(F)-(G), (3)(A), (3)(C)-(D), (4)(C)-(F), (5)(D), (6)(E)-(F), (6)(H)-(I), (7)(F)
Algebraic Reasoning: (2)(A)-(D), (3)(A)-(B), (3)(F), (4)(B), (7)(B) | Aquatic Science: (2)(J)
Astronomy: (2)(H)
Biology: (2)(H)
Chemistry: (2)(I)
Earth and Space Science: (2)(I)
Environmental Systems: (2)(K)
Integrated Physics and Chemistry: (2)(E), (7)(D), (7)(F)
Physics: (2)(KI)-(LJ), (3)(A)-(B), (3)(EE), (4)(A)-(C), (4)(E), (5)(A)-(D), (5)(G)-(H), (6)(D)-(G), (7)(A)-(C), (7)(E)-(F), (8)(A)-(D) | Accounting II: (1)(A), (2)(D)-(E), (2)(G), (3)(E)-(I), (4)(A)-(I), (5)(A)-(B), (5)(F)-(J), (5)(L)-(P), (6)(C)-(H), (6)(J)-(M), (6)(R)(i)-(vi); Applied Mathematics for Technical Professionals: (1)(D)-(E), (1)(G), (2)(B), (2)(H), (3)(F), (3)(K), (5)(A), (5)(C)-(D), (6)(C)-(D), (7)(D)-(E); Digital Electronics (1)(C), (2)(D)-(E), (2)(G); Engineering Mathematics: (1)(C), (2)(D)-(E), (2)(G), (3)(A), (7)(B)-(E), (8)(B)-(C), (8)(E)-(F), (8)(K), (9)(B)-(C), (10)(B), (10)(F)-(G), (10)(K)-(L); Financial Mathematics: (1)(A), (2)(D)-(E), (2)(G), (3)(D), (3)(J), (5)(D)-(E), (6)(C), (6)(F), (7)(A), (8)(A), (11)(B), (12), (17)(F); Manufacturing Engineering Technology II: (1)(F), (2)(D)-(E), (2)(G); Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(D)-(E), (2)(G), (4)(G), (5)(C)-(E), (6)(C)-(D), (7)(D), (8)(C), (9)(C), (10)(C), (11)(C)-(D), (12)(D); Mathematics for Medical Professionals: (1)(A), (2)(D)-(E), (2)(G), (3)(A), (3)(C)-(D), (3)(F), (4)(A)-(F), (5)(A), (5)(D), (6)(A)-(I); Robotics II: (2)(D)-(E), (2)(G), (10)(D)-(E), (11)(D), (12)(G); Statistics and Business Decision Making: (1)(A), (2)(D)-(E), (2)(G), (4)(A)-(E), (5), (6)(C), (7)(A)-(B), (9), (10)(A)-(C), (12)-(13), (14)(A)-(C), (15)(A), (16)(B), (16)(E)-(H), (17)-(19), (20)(A)-(C), (21); Basic Collision Repair and Refinishing: (2)(C); Collision Repair: (2)(B); Paint and Refinishing: (2)(C); Diesel Equipment Technology: (3)(C), (5)(E); Principles of Technology: (1)(C), (3)(K)-(L); Engineering Design and Problem Solving: (1)(C), (6)(A)-(F); Engineering Sciences: (1)(C), (3)(F), (3)(H); Biotechnology I: (1)(C), (3)(J); Biotechnology II: (1)(C), (3)(J), (10)(A); Scientific Research & Design: (1)(C), (10)(A); Diversified Manufacturing I: (2)(B); Diversified Manufacturing II: (2)(B), (2)(D); Manufacturing Engineering Technology I: (2)(B); Metal Fabrication and Machining I: (2)(B); Metal Fabrication and Machining II: (3)(D), (8)(C); Precision Metal Manufacturing I: (3)(C); Precision Metal Manufacturing II: (13)(A)-(C); Welding I: (5)(C); Welding II: (5)(B); Small Engine Technology I: (5)(D); Small Engine Technology II: (6)(B) | Discrete Mathematics for Problem-Solving: (3)(A)-(B)Robotics Programming and Design: (1)(D)-(E), (1)(G), (3)(D)-(E), (3)(H), (7)(C) |

C. Presentation and representation of mathematical work

| VIII. [IX.] C.1. Communicate mathematical ideas, reasoning, and their implications using symbols, diagrams, models, graphs, and words. | Kindergarten - Grade 12: (1)(D)-(F)
Kindergarten: (8)(C)
Grade 1: (3)(A), (3)(E), (6)(G)-(H), (8)(A)-(C)
Grade 2: (3)(B), (6)(A)-(B), (7)(C)
Grade 3: (3)(A), (3)(C), (3)(H), (4)(D)-(E), (4)(H), (5)(A)-(B), (5)(E)
Grade 4: (3)(B)-(C), (5)(A)-(B)
Grade 5: (2)(B), (4)(B)-(C)
Grade 6: (5)(A), (6)(C), (7)(A), (7)(D), (8)(C), (9)(A)-(C)
Grade 7: (4)(A), (7), (8)(B), (10)(A)-(C), (11)(C)
Grade 8: (4)(B), (5)(A)-(B), (5)(D)-(E), (5)(I), (6)(B), (8)(A)-(C), (9), (11)(C)
Algebra I: (2)(B)-(A), (3)(C)-(D), (3)(F), (3)(H), (4)(C), (7)(A)-(B), (8)(B), (9)(B)-(E), (12)(A)
Algebra II: (2)(A)-(C), (3)(A), (3)(E), (4)(A)-(B), (4)(E), (5)(B), (6)(D), (6)(H), (6)(L), (8)(B)
Geometry: (4)(A)-(D), (5)(B)-(C), (6)(A)-(B), (6)(D)-(E), (8)(A)-(B), (12)(D)
Precalculus: (2)(D), (2)(F)-(K), (2)(M)-(N), (3)(A), (3)(D)-(E), (4)(B), (4)(J), (5)(C), (5)(H)-(I)
Mathematical Models with Applications: (2)(A)-(C), (3)(A), (3)(C)-(D), (5)(A)-(C), (7)(A), (7)(C), (10)(B)
Advanced Quantitative Reasoning: (2)(F), (2)(H), (3)(A), (3)(F)-(H), (4)(P), (4)(R)-(T)
Discrete Mathematics for Problem Solving: (2)(A)-(B), (2)(D)-(I), (2)(J)-(K), (3)(A)-(C), (5)(B), (6)(B), (6)(G)-(H), (7)(D), (7)(G)
Statistics: (2)(A)-(D), (2)(F)-(G), (4)(B), (5)(C), (6)(E), (6)(G), (7)(F),
Algebraic Reasoning: (2)(A)-(D), (3)(D)-(E), (4)(A)-(D), (7)(A)-(E) | Grade 6: (8)(D)
[Grade 7: (7)(A)]
Grade 8: (6)(A), (6)(C), (7)(A) [, (8)(D)]
Aquatic Science: (2)(J)
Astronomy: (2)(H)
Biology: (2)(H)
Chemistry: (2)(I)
Earth and Space Science: (2)(I)
Environmental Systems: (2)(K)
Integrated Physics and Chemistry: (2)(E), (3)(B)
Physics: (2)(H)-(J), (3)(A)-(B), (3)(E), (4)(A)-(C), (5)(A)-(D), (6)(D), (7)(A)-(C), (7)(E), (8)(A)-(D)
[Physics: (2)(I)-(L), (3)(A)-(D), (3)(F), (4)(A)-(C), (4)(E), (5)(A)-(D), (5)(G)-(H), (6)(D)-(G), (7)(A)-(C), (7)(E)-(F), (8)(A)-(D)] | Accounting II: (1)(A), (2)(D)-(F), (3)(B), (3)(E)-(G), (4)(C), (4)(H)-(I), (5)(B), (5)(L)-(P), (6)(E)(i)-(vi), (6)(G)(i)-(iv), (6)(R)(iv)-(v); Applied Mathematics for Technical Professionals: (1)(D)-(F), (2)(B)-(C), (2)(E), (2)(H), (3)(I)-(K), (4)(D), (4)(I), (5)(A), (5)(D)-(E), (6)(A), (6)(C)-(D), (7)(D)-(E); Digital Electronics: (1)(C), (2)(D)-(F), (7)(L), (8)(B), (12)(A)-(B); Engineering Mathematics: (1)(C), (2)(D)-(F), (4)(C), (4)(G), (4)(I), (5)(B), (6)(A), (6)(J)-(O), (7)(B), (7)(G), (7)(K), (9)(D), (11)(C)-(D); Financial Mathematics: (1)(A), (2)(D)-(F), (3)(G), (3)(J)-(L), (4)(D)-(F), (4)(K)-(L), (5)(A)-(F), (6)(A), (6)(C)-(G), (6)(I), (7)(A)-(C), (7)(E), (7)(H)-(I), (7)(K)-(L), (8)(A)-(D), (9)(A)-(D), (10)(A), (10)(E)-(G), (11)(A)-(B), (12)-(14), (15)(C), (17)(D)-(G); Manufacturing Engineering Technology II: (1)(F), (2)(D)-(F), (8)(C); Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(D)-(F), (4)(G), (5)(B)-(D), (6)(C)-(D), (7)(C), (8)(C), (9)(C), (10)(C), (11)(C), (12)(D); Mathematics for Medical Professionals: (1)(A), (2)(D)-(F), (4)(A)-(E); Robotics II: (1)(J), (2)(D)-(F), (8)(A), (8)(D), (10)(D)-(E), (11)(C), (12)(G); Statistics and Business Decision Making: (1)(A), (2)(D)-(F), (7)(A)-(B), (7)(D), (9), (10)(A)-(C), (12)-(13), (16)(A), (16)(C), (16)(E), (16)(G)-(H), (20)(B)-(C), (21); Basic Collision Repair and Refinishing: (2)(B); Collision Repair: (2)(B); Paint and Refinishing: (2)(B); Principles of Technology: (1)(C), (3)(K)-(L); Engineering Design and Problem Solving: (1)(C), (6)(A)-(F); Engineering Science: (1)(C), (3)(F), (3)(H); Biotechnology I: (1)(C), (3)(J); Biotechnology II: (1)(C), (3)(J), (10)(A); Scientific Research & Design: (1)(C), (10)(A), Principles of Information Technology: (9)(E) | Discrete Mathematics for Problem-Solving: (2)(A), (2)(D), (3)(A)-(B), (4)(A)-(D), (4)(F), (4)(H)
Robotics Programming and Design: (1)(D)-(F), (2)(B), (3)(D)-(E), (3)(H), (5)(A), (7)(C) |

VIII. [IX.] C.2. Create and use representations to organize, record, and communicate mathematical ideas.	Kindergarten - Grade 12: (1)(D)-(F) Kindergarten: (3)(A), (8)(A)-(B) Grade 1: (3)(A), (3)(E), (8)(A)-(B) Grade 3: (3)(A), (3)(E), (3)(H), (4)(D)-(E), (5)(A)-(B), (5)(E) Grade 4: (5)(A)-(B) Grade 5: (5), (8)(C) Grade 6: (2)(A), (4)(F) Grade 7: (6)(A), (7) Grade 8: (11)(A) Algebra I: (4)(A), (4)(C) Algebra II: (8)(A)-(C) Geometry: (5)(C) Mathematical Models with Applications: (2)(C), (3)(C), (5), (5)(B), (7)(B)-(C), (9)(E), (10)(A)-(B) Advanced Quantitative Reasoning: (2)(F), (3)(A), (4)(P)-(R) Discrete Mathematics for Problem Solving: (2)(A)-(L), (4)(A), (4)(E), (4)(G), (6)(B), (6)(G), (6)(J), (7)(C), (7)(F)-(G) Statistics: (2)(E)-(F), (4)(D), (5)(A), (5)(C) Algebraic Reasoning: (2)(C)-(D), (3)(D)-(F), (4)(A)-(B), (4)(D)	Grades 6-8: (2)(D) Grade 6: (8)(B), (8)(D)-(E) [Grade 7: (7)(A)] Grade 8: (6)(A), (6)(C), (7)(A) [, (8)(D)] Aquatic Science: (2)(J) Astronomy: (2)(H) Biology: (2)(H) Chemistry: (2)(I) Environmental Systems: (2)(K) Integrated Physics and Chemistry: (2)(E), (3)(B) Physics: (2)(H)-(J), (3)(A)-(B), (3)(E), (4)(A)-(D), (5)(A)-(D), (7)(A)-(C), (7)(E), (8)(A)-(D) [Physics: (2)(I)-(L), (3)(A)-(D), (3)(F), (4)(A)-(E), (5)(A)-(D), (5)(G)-(H), (6)(E)-(G), (7)(A)-(C), (7)(E)-(F), (8)(A)-(D)]	Accounting II: (1)(A), (2)(D)-(F), (3)(B), (3)(E)-(F), (4)(C), (4)(H)-(I), (5)(B), (5)(L)-(N), (5)(P), (6)(E)(i)-(vi), (6)(G)(i)-(iv), (6)(R)(iv)-(v); Applied Mathematics for Technical Professionals: (1)(D)-(F), (3)(I)-(J), (6)(A), (6)(C); Digital Electronics: (1)(C), (2)(D)-(F), (7)(L), (7)(N), (8)(B), (12)(A)-(B); Engineering Mathematics: (1)(C), (2)(D)-(F), (3)(B), (4)(C), (11)(A); Financial Mathematics: (1)(A), (2)(D)-(F), (6)(C), (6)(F), (7)(A)-(B), (8)(A), (11)(B), (12), (17)(F); Manufacturing Engineering Technology II: (1)(F), (2)(D)-(F), Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(D)-(F), (4)(G), (5)(D), (6)(D), (7)(D), (8)(C), (9)(C), (10)(C); Mathematics for Medical Professionals: (1)(A), (2)(D)-(F), (4)(A)-(C); Robotics II: (1)(J), (2)(D)-(F), (10)(D)-(E), (12)(G); Statistics and Business Decision Making: (1)(A), (2)(D)-(F), (7)(A), (7)(C), (8)(A)-(E), (9), (10)(A)-(C), (12)-(13), (20)(A)-(B), (21); Basic Collision Repair and Refinishing: (2)(B); Collision Repair: (2)(B); Paint and Refinishing: (2)(B); Principles of Technology: (1)(C), (3)(K)-(L); Engineering Design and Problem Solving: (1)(C), (6)(A)-(F); Engineering Science: (1)(C), (3)(F), (3)(H); Biotechnology I: (1)(C), (3)(J); Biotechnology II: (1)(C), (3)(J), (10)(A); Scientific Research & Design: (1)(C), (10)(A); Diversified Manufacturing I: (8)(A); Small Engine Technology I: (2)(E)-(F), (6)(A); Small Engine Technology II: (7)(A)(C)	Discrete Mathematics for Problem-Solving: (1)(A), (3)(A)-(B) Robotics Programming and Design: (1)(D)-(F), (2)(B), (3)(E), (3)(H)
VIII. [IX.] C.3. Explain, display, or justify mathematical ideas and arguments using precise mathematical language in written or oral communications.	Kindergarten - Grade 12: (1)(D), (1)(F)-(G) Kindergarten: (3)(C) Grade 1: (3)(E) Grade 2: (10)(A) Grade 3: (3)(H), (7)(A)-(B) Grade 5: (4)(E), (8)(A)-(B), (10)(B) Grade 6: (3)(B), (4)(C)-(D), (7)(B) Grade 8: (8)(D) Algebra I: (4)(B) Algebra II: (4)(G), (5)(E), (6)(J) Geometry: (3)(A), (6)(A)-(E), (8)(A), (12)(D) Precalculus: (2)(J)-(K), (2)(M), (4)(A), (4)(J) Mathematical Models with Applications: (3)(B), (7)(B)-(C), (8)(C), (9)(A)-(B), (10)(B) Advanced Quantitative Reasoning: (2)(B), (2)(G)-(H), (3)(B), (3)(F)-(H), (4)(G)-(T) Discrete Mathematics: (2)(A), (2)(L), (3)(G), (4)(B), (4)(D)-(F), (4)(H), (5)(C), (5)(E)-(K), (6)(E), (6)(H)-(I), (6)(K), (7)(A)-(C), (7)(E)-(G) Statistics: (2)(E)-(F), (3)(A), (3)(C)-(D), (4)(A), (4)(C)-(F), (6)(B), (6)(E)-(F), (6)(H)-(J), (7)(C)-(F) Algebraic Reasoning: (3)(A)-(B), (3)(F), (4)(B), (7)(B)-(C)	Integrated Physics and Chemistry: (2)(E), (3)(B), (4)(A), (4)(D)-(F), (5)(A)-(C), (5)(E), (5)(H)-(I), (6)(A)-(E), (7)(A)-(F) Physics: (2)(J), (3)(A)-(B), (3)(E), (4)(A)-(B), (5)(A)-(D), (6)(E)-(G), (7)(A), (E)-(F), (8)(A)-(D) [Physics: (2)(I)-(L), (3)(A)-(D), (3)(F), (4)(A)-(E), (5)(A)-(D), (5)(G)-(H), (6)(E)-(G), (7)(A)-(C), (7)(E)-(F), (8)(A)-(D)]	Accounting II: (1)(A), (2)(D), (2)(F)-(G), (3)(E)-(H), (4)(A)--(B), (4)(F), (4)(I), (5)(A)-(B), (5)(G)-(J), (5)(L)-(N), (5)(P), (6)(A)-(B), (6)(E)-(J), (6)(L)-(Q), (7)(A)-(B), (8)(B)Applied Mathematics for Technical Professionals: (1)(D), (1)(F)-(G), (2)(B), (2)(H), (3)(K), (5)(D)-(E), (6)(A), (6)(C)-(D), (7)(D)-(E) Digital Electronics: (1)(C), (2)(D), (2)(F)-(G), (7)(A), (7)(C), (7)(L), (7)(N), (8)(B), (9)(C), (9)(F)-(G), (11)(A)-(B), (11)(D), (11)(F), (11)(J), (12)(A)-(B), (12)(F)-(H)Engineering Mathematics: (1)(C), (2)(F)-(G), (3)(A), (6)(B), (6)(D)-(E), (7)(C)-(E), (8)(B)-(C), (8)(E)-(F), (8)(J)-(K), (9)(B), (10)(E), (10)(L)Financial Mathematics: (1)(A), (2)(D), (2)(F)-(G), (3)(A)-(D), (3)(G), (3)(J)-(L), (4)(D)-(F), (4)(K)-(L), (5)(A)-(B), (5)(D)-(F), (6)(A), (6)(C)-(I), (7)(A)-(C), (7)(E), (7)(H)-(I), (7)(K), (8)(A), (8)(C)-(D), (9)(A)-(D), (10)(A), (10)(D)-(E), (11)(A)-(B), (12), (14), (15)(C), (17)(F)Manufacturing Engineering Technology II: (1)(F), (2)(D), (2)(F)-(G)Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(B), (2)(F)-(G), (4)(G), (5)(D), (6)(D)Mathematics for Medical Professionals: (1)(A), (2)(D), (2)(F)-(G), (3)(E), (4)(A)-(C), (5)(A)-(B), (6)(H)-(K)Robotics II: (1)(J), (2)(D), (3)(G), (7)(B)-(C), (7)(E), (8)(B)-(C), (9)(A)-(C), (10)(B), (10)(D)-(E), (10)(G)-(H), (12)(G)Statistics and Business Decision Making: (1)(A), (2)(D), (2)(F)-(G), (3)(A), (4)(A)-(E), (5), (6)(C), (7)(A)-(B), (7)(D), (9), (10)(C), (12)-(13), (15)(B), (16)(A), (16)(C), (16)(E), (16)(G)-(H), (20)(A) Principles of Technology: (1)(C), (3)(K)-(L); Engineering Design and Problem Solving: (1)(C), (6)(A)-(F); Engineering Science: (1)(C), (3)(F), (3)(H); Biotechnology I: (1)(C), (3)(J); Biotechnology II: (1)(C), (3)(J), (10)(A); Scientific Research & Design: (1)(C), (10)(A), Manufacturing Engineering Technology I: (3)(B), (8)(B); Precision Metal Manufacturing I: (3)(D); Precision Metal Manufacturing II: (6)(B)-(D), (13)(A)-(C); Welding I: (3)(B); Small Engine Technology I: (2)(E)-(F), (6)(A)	Discrete Mathematics for Problem-Solving: (1)(B), (2)(A)-(F), (3)(A)-(B), (4)(A)-(D), (4)(F)-(O), (6)(C)-(G), (6)(L)-(M)Robotics Programming and Design: (1)(D), (1)(F)-(G), (2)(D), (2)(F), (3)(D)-(H), (4)(A), (4)(D), (7)(D)-(G), (7)(J), (7)(N), (7)(Q)-(S)

IX. [X.] Connections

A. Connections among the strands of mathematics

| IX. [X.] A.1. Connect and use multiple key concepts [strands] of mathematics in situations and problems. | Kindergarten - Grade 12: (1)(A), (1)(F) Grade 6: (4)(G), (10)(A) Grade 7: (5)(B), (8)(A)-(C) Grade 8: (12)(A)-(D), (12)(G) Algebra I: (7)(A) Algebra II: (4)(B) Geometry: (2)(A)-(C), (4)(B)-(D), (12)(E), (13)(B)-(E) Precalculus: (3)(B)-(I), (4)(C)-(D), (4)(F)-(K) Mathematical Models with Applications: (2)(A)-(C), (5)(A)-(C), (6)(A)-(D) Advanced Quantitative Reasoning: (2)(A), (2)(F), (4)(G), Discrete Mathematics for Problem Solving: (c)(2)-(7) Statistics: (2)(B)-(F) | | Accounting II: (2)(A), (2)(F); Applied Mathematics for Technical Professionals: (1)(A), (1)(F); Digital Electronics: (2)(A), (2)(F), (7)(L), (7)(O), (8)(A)-(C), (9)(D), (10)(D), (10)(E), (7)(I)-(K), (12)(A)-(B); Engineering Mathematics: (2)(A), (2)(F), (6)(J)-(O) ; Financial Mathematics: (2)(A), (2)(F); Manufacturing Engineering Technology II: (2)(A), (2)(F), (8)(B)-(C); Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(A), (2)(F), (5)(F), (6)(C), (7)(A), (8)(B)-(C), (11)(A), (11)(C); Mathematics for Medical Professionals: (2)(A), (2)(F), (4)(A); Robotics II: (2)(A), (2)(F), (6)(B), (7)(H)-(K), (8)(A)-(J), (10)(B), (11)(B)-(D), (12)(A)-(B); Statistics and Business Decision Making: (2)(A), (2)(F) ; Principles of Technology: (1)(C), (3)(K)-(L); Engineering Design and Problem Solving: (1)(C), (6)(A)-(F); Engineering Science: (1)(C), (3)(F), (3)(H); Biotechnology I: (1)(C), (3)(J); Biotechnology II: (1)(C), (3)(J), (10)(A); Scientific Research & Design: (1)(C), (10)(A); Diversified Manufacturing II: (2)(C); Metal Fabrication and Machining I: (2)(C); Metal Fabrication and Machining II: (3)(E), (8)(B); Precision Metal Manufacturing I: (3)(B); Precision Metal Manufacturing II: (11)(A)-(H), (12)(A)-(G), (13)(A)-(C); Manufacturing Engineering Technology I: (8)(B); Precision Metal Manufacturing II Lab: (6)(A)-(H), (7)(A)-(G) | Discrete Mathematics for Computer Science: (1)(A)-(C), (2)(A), (2)(D), (2)(F), (3)(A)-(B), (4)(A)-(O), (5)(C), (6)(A)-(M) Robotics Programming and Design: (1)(A), (1)(F), (2)(A), (2)(C), (2)(H), (4)(A)-(E), (5)(A)-(G), (7)(L)-(P) |

IX. [X.] A.2. Connect mathematics to the study of other disciplines.	Kindergarten - Grade 12: (1)(A), (1)(F) Grade 4: (10)(B) Grade 5: (10)(B), (10)(F) Grade 6: (14)(C) Grade 7: (13)(A), (13)(C)-(E), (14)(A) Grade 8: (12)(A)-(D) Algebra I: (9)(C) Precalculus: (4)(A), (4)(D), (4)(F), (4)(I), (4)(K)-(L), (4)(N) Mathematical Models with Applications: (c)(2)-(10) Advanced Quantitative Reasoning: (2)(B)-(H), (3)(A)-(H), (4)(H)-(T) Discrete Mathematics for Problem Solving: (2)(B), (2)(J)-(K), (3)(A)-(G), (4)(A)-(J), (5)(A)-(K), (6)(A)-(K), (7)(A)-(G) Algebraic Reasoning: (2)(D), (3)(C)-(F), (4)(A), (5)(D)-(E), (7)(C)-(E)	Grade 6: (6)(B), (8)(B)-(E) [Grade 7: (7)(A)] Grade 8: (6)(A), (6)(C), (7)(A), [(8)(D)] Aquatic Science: (2)(I) Astronomy: (6)(A)-(D), (9)(A)-(B), (11)(E) Chemistry: (2)(G), (5)(C), (6)(C)-(D), (8)(B)-(E), (9)(A) [(B)] , (10)(C)-(D), (10)(H), [(10)(I).] (11)(C)-(D) Earth and Space Science: (2)(H), (3)(E)-(F), (7)(B), (10)(D) Environmental Systems: (2)(J), (7)(B) Integrated Physics and Chemistry: (3)(D)-(F), (4)(A)-(G), (5)(A)-(I) Physics: (2)(H)-(J), (3)(A)-(C), (3)(E), (4)(A)-(D), (5)(B)-(C), (5)(F), (6)(A), (6)(C)-(D), (7)(B)-(E) [Physics: (2)(I)-(LJ), (3)(A)-(D), (3)(F), (4)(A)-(E), (5)(B)-(C), (5)(F), (6)(A), (6)(C)-(D), (6)(G), (7)(B)-(F)]	Accounting II: (c)(2)-(8); Applied Mathematics for Technical Professionals: (c)(1)-(7); Digital Electronics: (2)(A), (2)(F), (5)(A)-(D), (7)(A), (7)(I), (7)(L)-(M), (8)(B), (9)(A), (9)(E), (10)(C), (10)(H), (10)(J)-(K), (11)(A)-(J), (12)(A)-(B); Engineering Mathematics: (c)(2)-(11); Financial Mathematics: (c)(2)-(17); Manufacturing Engineering Technology II: (2)(A), (2)(F); Mathematical Applications in Agriculture, Food, and Natural Resources: (c)(2)-(12); Mathematics for Medical Professionals: (c)(2)-(7); Robotics II: (c)(2)-(12); Statistics and Business Decision Making: (c)(2)-(23) ; Forestry and Woodland Ecosystems: (4)(A)-(D); Basic Collision Repair and Refinishing: (3)(C)-(D); Collision Repair: (2)(D), (10)(K)-(M); Paint and Refinishing: (3)(C); Principles of Technology: (3)-(13); Engineering Design and Problem Solving: (3)-(9); Engineering Sciences: (4)-(16); Biotechnology I: (3)-(13); Biotechnology II: (3)-(14); Scientific Research & Design: (3)-(10); Principles of Manufacturing: (3)(C), Diversified Manufacturing I: (10)(C); Diversified Manufacturing II: (11)(C); Metal Fabrication and Machining II: (3)(C), (8)(A); Precision Metal Manufacturing I: (3)(B)-(F); Precision Metal Manufacturing II: (6)(C)-(D), (11)(A)-(H), (12)(A)-(G), (13)(A)-(C); Precision Metal Manufacturing II Lab: (6)(A)-(H), (7)(A)-(G); Welding I: (3)(B), (5)(C); Welding II: (3)(A)-(B), (5)(B)	Discrete Mathematics for Computer Science: (1)(A)-(C), (2)(A)-(D), (2)(F), (3)(A)-(B), (4)(A)-(O), (5)(C) Robotics Programming and Design: (c)(1)-(7)
B. Connections of mathematics to nature, real-world situations, and everyday life				
IX. [X.] B.1. Use multiple representations to demonstrate links between mathematical and real-world situations.	Kindergarten - Grade 12: (1)(A), (1)(D) Kindergarten: (4) Grade 1: (4)(A)-(C) Grade 2: (5)(A)-(B), (11)(A) Grade 3: (4)(C), (5)(E), (7)(C)-(E) Grade 5: (3)(A), (8)(C) Grade 6: (2)(D), (4)(B), (4)(G), (5)(A)-(B), (9)(C) Grade 7: (4)(A)-(E), (5)(C), (6)(F), (10)(C), (12)(B)-(C), (13)(A), (13)(C)-(E) Grade 8: (4)(B)-(C), (5)(D), (8)(A)-(C), (11)(A) Algebra I: (2)(A), (2)(D), (2)(H)-(I), (3)(B), (3)(G), (4)(C), (8)(B), (9)(C)-(E) Algebra II: (4)(E), (5)(B), (6)(H), (8)(A)-(C), (9)(A)-(B), (12)(B)-(C) Geometry: (6)(A), (6)(D)-(E), (7)(B), (8)(A)-(B), (9)(A)-(B), (12)(B)-(C) Precalculus: (2)(N)-(P), (3)(C), (4)(A), (4)(D)-(I), (4)(K), (5)(H)-(L), (5)(N) Mathematical Models with Applications: (c)(2)-(10) Advanced Quantitative Reasoning: (2)(A)-(H), (3)(A)-(H), (4)(H)-(T) Discrete Mathematics for Problem Solving: (2)(B), (2)(G)-(H), (2)(J)-(K), (3)(A)-(G), (4)(A)-(J), (5)(A)-(K), (6)(A)-(K), (7)(A)-(G) Statistics: (2)(F), (3)(B), (4)(B), (4)(D)-(F), (5)(C)-(D), (7)(A), (7)(C), (7)(E)-(F) Algebraic Reasoning: (2)(B)-(D), (3)(C)-(F), (4)(A), (5)(D)-(E), (6)(B)-(C), (7)(B)-(E)	Grade 6: (6)(B), (8)(B)-(E) [Grade 7: (7)(A)] Grade 8: (6)(A), (6)(C), (7)(A), (8)(D) Aquatic Science: (2)(I) Astronomy: (6)(A)-(D), (9)(A)-(B), (11)(E) Chemistry: (2)(G), (5)(C), (6)(C) [(D)] , (8)(B)-(E), (9)(A) [(B)] , (10)(C)-(D), (10)(H), [(10)(I).] (11)(C)-(D) Earth and Space Science: (2)(H), (3)(E)-(F), (7)(B), (10)(D) Environmental Systems: (2)(J), (7)(B) Integrated Physics and Chemistry: (3)(D)-(F), (4)(B) Physics: (2)(H)-(J), (3)(A)-(D), (3)(E), (4)(A), (4)(C) [Physics: (2)(I)-(L), (3)(A)-(D), (3)(F), (4)(A), (4)(C), (4)(E)]	Accounting II: (1)(A), (2)(D)-(F), (3)(B), (3)(E)-(G), (4)(C), (4)(H)-(I), (5)(B), (5)(L)-(P), (6)(E)(i)-(vi), (6)(G)(i)-(iv), (6)(R)(iv)-(v) Applied Mathematics for Technical Professionals: (1)(D)-(F), (2)(B)-(C), (2)(E), (2)(H), (3)(I)-(K), (4)(D), (4)(I), (5)(A), (5)(D)-(E), (6)(A), (6)(C)-(D), (7)(D)-(E) Digital Electronics: (1)(C), (2)(D)-(F), (7)(L), (8)(B), (12)(A)-(B) Engineering Mathematics: (1)(C), (2)(D)-(F), (4)(C), (4)(G), (4)(I), (5)(B), (6)(A), (6)(J)-(O), (7)(B), (7)(G), (7)(K), (9)(D), (11)(C)-(D) Financial Mathematics: (1)(A), (2)(D)-(F), (3)(G), (3)(J)-(L), (4)(D)-(F), (4)(K)-(L), (5)(A)-(F), (6)(A), (6)(C)-(G), (6)(I), (7)(A)-(C), (7)(E), (7)(H)-(I), (7)(K)-(L), (8)(A)-(D), (9)(A)-(D), (10)(A), (10)(E)-(G), (11)(A)-(B), (12)-(14), (15)(C), (17)(D)-(G) Manufacturing; Engineering Technology II: (1)(F), (2)(D)-(F), (8)(C) Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(D)-(F), (4)(G), (5)(B)-(D), (6)(C)-(D), (7)(C), (8)(C), (9)(C), (10)(C), (11)(C), (12)(D); Mathematics for Medical Professionals: (1)(A), (2)(D)-(F), (4)(A)-(E) Robotics II: (1)(J), (2)(D)-(F), (8)(A), (8)(D), (10)(D)-(E), (11)(D), (12)(G) Statistics and Business Decision Making: (1)(A), (2)(D)-(F), (7)(A)-(B), (7)(D), (9), (10)(A)-(C), (12)-(13), (16)(A), (16)(C), (16)(E), (16)(G)-(H), (20)(B)-(C), (21) Basic Collision Repair and Refinishing: (3)(C)-(D) Collision Repair: (2)(D), (3)(D), (10)(K)-(M) Paint and Refinishing: (3)(C) Engineering Design and Problem Solving: (5)(K), (8)(A)-(I), (9)(A)-(I) Engineering Science: (6)(A), (15)(A)-(H), (16)(A)-(D) Manufacturing Engineering Technology I: (8)(B) Precision Metal Manufacturing II Lab: (7)(A)-(C) Automotive Technology II: Automotive Service: (2)(B)	Discrete Mathematics for Problem-Solving: (1)(A)-(C), (2)(A)-(F), (3)(A)-(B), (4)(F), (4)(L)-(O), (5)(C) Robotics Programming and Design: (1)(D)-(F), (2)(B), (3)(D)-(E), (3)(H), (5)(A), (7)(C)
IX. [X.] B.2. Understand and use appropriate mathematical models in the natural, physical, and social sciences.	Kindergarten - Grade 12: (1)(A) Grade 8: (5)(E), (5)(H), (8)(A)-(C), (11)(A), (12)(A)-(D) Algebra I: (2)(D), (4)(C), (5)(A)-(C), (8)(A)-(C), (9)(C), (9)(E) Algebra II: (5)(B), (6)(H), (6)(L) Precalculus: (2)(N)-(P), (3)(C), (4)(A), (4)(D)-(K), (5)(C), (5)(J)-(L), (5)(N) Mathematical Models with Applications: (5)(A)-(C), (6)(A)-(D), (8)(A)-(C), (9)(A)-(F), (10)(A)-(B) Advanced Quantitative Reasoning: (2)(A)-(H), (3)(A), (3)(C)-(H), (4)(H)-(T) Discrete Mathematics for Problem Solving: (2)(G), (2)(K), (4)(A)-(J), (5)(A)-(K), (6)(A)-(K), (7)(A)-(G) Statistics: (c)(2)-(7) Algebraic Reasoning: (2)(C)-(D), (3)(C)-(D), (5)(D)-(E), (6)(B)-(C), (7)(C)-(E)	Grades 6 - 8: [(2)(E)] (3)(B)-(C) Grade 6: (6)(B), (8)(C) [Grade 7: (7)(A)] Grade 8: (6)(A), (6)(C), (7)(A), [(8)(D)] Aquatic Science: (2)(I) Astronomy: (6)(A)-(D), (9)(A)-(B), (11)(E) Chemistry: (2)(G), (5)(C), (6)(C)-(D), (8)(B)-(E), (9)(A) (B), (10)(C)-(D), (10)(H), (11)(C)-(D) Earth and Space Science: (2)(H), (3)(E)-(F), (7)(B), (10)(D) Environmental Systems: (2)(J), (7)(B) Integrated Physics and Chemistry: (3)(D)-(F), (4)(A)-(G), (5)(A)-(I) Physics: (2)(H)-(J), (3)(A)-(C), (3)(E), (4)(A)(D), (5)(B)-(C), (5)(F), (6)(A), (6)(C)-(G), (7)(A)-(E), (8)(A)-(C) [Physics: (2)(I)-(L), (3)(A)-(D), (3)(F), (4)(A)(E), (5)(B)-(C), (5)(F), (6)(A), (6)(C)-(G), (7)(A)-(F), (8)(A)-(C)]	Accounting II: (2)(A), (3)(B)-(D), (3)(F), (4)(B)-(I), (5)(B), (5)(D)-(F), (5)(I), (5)(K)-(P), (6)(D)-(H), (6)(J)-(O), (6)(R), (7)(A), (7)(B)(iv)-(v), (8)(A) Applied Mathematics for Technical Professionals: (1)(A), (2)(A)-(H), (3)(A)-(K), (4)(A)-(F), (5)(A)-(E), (6)(A)-(C), (7)(A)-(E); Digital Electronics: (2)(A), (7)(A)-(O), (8)(A)-(F), (9)(A)-(F), (10)(A)-(K)- (11)(A)-(J), (12)(A)-(E); Engineering Mathematics: (c)(2)-(11); Financial Mathematics: (2)(A), (3)(C)-(L), (4)(A)-(C), (4)(E)-(K), (5)(C)-(E), (6)(B)-(G), (6)(I), (7)(A)-(I), (7)(K)-(L), (8)(A)-(F), (9)(A)-(D), (10)(A)-(C), (10)(E)-(F), (11)(A)-(D), (12), (15)(A), (15)(C), (17)(C), (17)(G); Manufacturing Engineering Technology II: (2)(A); Mathematical Applications in Agriculture, Food, and Natural Resources: (c)(2)-(12); Mathematics for Medical Professionals: (2)(A), (4)(A)-(F); Robotics II: (c)(2)-(12); Statistics and Business Decision Making: (2)(A), (6)(A), (6)(C), (7)(C)-(D), (9), (10)(A)-(C), (12)-(13), (15)(A), (16)(A)-(H), (17)-(19), (20)(A)-(C), (21), (22)(A)-(D); Basic Collision Repair and Refinishing: (3)(C); Collision Repair: (3)(D), (5)(D); HVAC Tech I: (6)(C); Engineering Design and Problem Solving: (3)(F), (4)(E), (5)(C), (5)(E), (8)(F); Engineering Science: (3)(F), (4)(E); Biotechnology I: (3)(F), (4)(E); Biotechnology II: (4)(E); Scientific Research and Design: (4)(E); Diversified Manufacturing II: (9)(A), (11)(C); Metal Fabrication and Machining II: (3)(C), (8)(A); Precision Metal Manufacturing I: (3)(C)-(D); Precision Metal Manufacturing II: (6)(C)-(D), (11)(A)-(H), (12)(A)-(G), (13)(A)-(C); Precision Metal Manufacturing II Lab: (6)(A)-(H), (7)(A)-(G); Introduction to Welding: (5)(A); Welding I: (3)(B); Welding II: (3)(A); Small Engine Technology I: (5)(D), (6)(A)(C)-(E); Small Engine Technology II: (5)(E), (7)(A)(E)-(G)	Discrete Mathematics for Computer Science: (1)(A)-(C), (2)(A), (3)(A)-(B), (5)(C) Robotics Programming and Design: (c)(1)-(7)

IX. [X.] B.3. Know and understand the use of mathematics in a variety of careers and professions.	Kindergarten - Grade 12: (1)(A) Grade 8: (12)(A)-(G) Precalculus: (4)(F) Mathematical Models with Applications: (c)(2)-(10) Advanced Quantitative Reasoning: (2)(A)-(H), (3)(C)-(H), (4)(D)-(F), (4)(H)-(T) Discrete Mathematics for Problem Solving: (2)(B), (2)(D), (2)(G), (2)(J)-(K), (3)(A)-(G), (4)(A)-(J), (5)(A)-(K), (6)(A)-(K), (7)(A)-(G) Statistics: (c)(2)-(7) Algebraic Reasoning: (3)(E), (4)(A), (7)(C)-(E)	Aquatic Science: (3)(E)-(F) Astronomy: (3)(E) Biology: (3)(F) Chemistry: (3)(E)-(F) Earth and Space Science: (3)(E)-(F), (12)(E) Environmental Systems: (3)(E)-(F) Integrated Physics and Chemistry: (3)(E)-(F) Physics: (3)(C)-(D) [(E), (5)(A), (7)(F)] , (8)(D)	Accounting II: (c)(1)-(8); Applied Mathematics for Technical Professionals: (c)(1)-(7); Digital Electronics: (1)(A)-(E), (2)(A), (3)(A)-(I), (4)(A)-(C), (5)(A)-(D), (6)(A)-(H), (7)(A), (7)(H)-(I), (7)(L)-(O), (8)(A)-(F), (9)(A)-(F), (10)(A)-(K), (11)(A)-(G), (12)(A)-(H); Engineering Mathematics: (c)(1)-(11); Financial Mathematics: (c)(1)-(17); Manufacturing Engineering Technology II: (1)(A)-(G), (2)(A); Mathematical Applications in Agriculture, Food, and Natural Resources: (c)(1)-(12); Mathematics for Medical Professionals: (c)(1)-(7); Robotics II:(c)(1)-(12); Statistics and Business Decision Making: (c)(1)-(23); Veterinary Medical Applications: (8)(A)-(H); Forestry and Woodland Ecosystems: (4)(A)-(D); Principles of Technology: (4)(E); Biotechnology I: (4)(F); Biotechnology II: (4)(F); Scientific Research and Design: (4)(F); Engineering Design and Problem Solving: (7)(A), (7)(C); Diversified Manufacturing II: (11)(C); Precision Metal Manufacturing I: (3)(B); Precision Metal Manufacturing II: (11)(C), (12)(C); Precision Metal Manufacturing II Lab: (6)(C), (7)(C); Introduction to Welding: (5)(A); Welding I: (3)(B); Welding II: (3)(A); Automotive Technology II: Automotive Service: (3)(H); Business Information Management II: (7)	Discrete Mathematics for Computer Science: (1)(A)-(C), (2)(A)-(F), (3)(A)-(B), (5)(A)-(C) Robotics Programming and Design: (c)(1)-(7)