



Texas Assessment of Knowledge and Skills - Answer Key

Grade: 08
Subject: Mathematics
Administration: April 2009

Item Number	Correct Answer	Objective Measured	Student Expectations
01	D	05	8.13 (B)
02	F	01	8.2 (C)
03	C	06	8.14 (C)
04	H	03	8.6 (B)
05	B	06	8.16 (B)
06	F	01	8.2 (A)
07	D	04	8.9 (B)
08	J	02	8.5 (B)
09	C	05	8.12 (A)
10	G	06	8.16 (A)
11	D	03	8.7 (B)
12	H	01	8.1 (A)
13	B	06	8.14 (A)
14	F	05	8.11 (A)
15	D	02	8.3 (B)
16	G	03	8.7 (D)
17	C	02	8.3 (A)
18	J	05	8.12 (B)
19	18.75	01	8.2 (B)
20	J	03	8.7 (A)
21	A	04	8.8 (C)
22	G	01	8.1 (D)
23	D	02	8.4 (A)
24	H	04	8.9 (A)
25	B	02	8.3 (B)
26	H	06	8.16 (A)
27	A	01	8.1 (A)
28	H	04	8.10 (A)
29	D	01	8.1 (C)
30	G	02	8.5 (B)
31	A	01	8.2 (A)
32	G	03	8.7 (C)
33	B	05	8.13 (B)
34	H	02	8.3 (A)
35	A	06	8.14 (B)
36	J	05	8.12 (C)
37	C	02	8.5 (A)
38	G	06	8.15 (A)
39	A	03	8.6 (A)
40	G	06	8.14 (A)
41	D	01	8.2 (D)
42	F	02	8.4 (A)
43	D	05	8.11 (B)
44	H	04	8.8 (A)
45	B	03	8.6 (B)
46	J	05	8.13 (A)
47	A	06	8.16 (B)
48	G	02	8.5 (A)
49	A	01	8.1 (B)
50	G	06	8.14 (C)

Grade 8 Mathematics

For a more complete description of the objectives measured, please refer to the Revised TAKS Information Booklet for Grade 8 Mathematics at <http://www.tea.state.tx.us/student.assessment/taks/booklets/index.html>.

Objective 1: The student will demonstrate an understanding of numbers, operations, and quantitative reasoning.

- (8.1) **Number, operation, and quantitative reasoning.** The student understands that different forms of numbers are appropriate for different situations. The student is expected to
- (A) compare and order rational numbers in various forms including integers, percents, and positive and negative fractions and decimals;
 - (B) select and use appropriate forms of rational numbers to solve real-life problems including those involving proportional relationships;
 - (C) approximate (mentally [and with calculators]) the value of irrational numbers as they arise from problem situations (such as π , $\sqrt{2}$); and
 - (D) express numbers in scientific notation, including negative exponents, in appropriate problem situations.
- (8.2) **Number, operation, and quantitative reasoning.** The student selects and uses appropriate operations to solve problems and justify solutions. The student is expected to
- (A) select appropriate operations to solve problems involving rational numbers and justify the selections;
 - (B) use appropriate operations to solve problems involving rational numbers in problem situations;
 - (C) evaluate a solution for reasonableness; and
 - (D) use multiplication by a constant factor (unit rate) to represent proportional relationships.

Objective 2: The student will demonstrate an understanding of patterns, relationships, and algebraic reasoning.

- (8.3) **Patterns, relationships, and algebraic thinking.** The student identifies proportional or non-proportional linear relationships in problem situations and solves problems. The student is expected to
- (A) compare and contrast proportional and non-proportional linear relationships; and
 - (B) estimate and find solutions to application problems involving percents and other proportional relationships such as similarity and rates.
- (8.4) **Patterns, relationships, and algebraic thinking.** The student makes connections among various representations of a numerical relationship. The student is expected to
- (A) generate a different representation of data given another representation of data (such as a table, graph, equation, or verbal description).

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- (8.5) **Patterns, relationships, and algebraic thinking.** The student uses graphs, tables, and algebraic representations to make predictions and solve problems. The student is expected to
- (A) predict, find, and justify solutions to application problems using appropriate tables, graphs, and algebraic equations; and
 - (B) find and evaluate an algebraic expression to determine any term in an arithmetic sequence (with a constant rate of change).

Objective 3: The student will demonstrate an understanding of geometry and spatial reasoning.

- (8.6) **Geometry and spatial reasoning.** The student uses transformational geometry to develop spatial sense. The student is expected to
- (A) generate similar figures using dilations including enlargements and reductions; and
 - (B) graph dilations, reflections, and translations on a coordinate plane.
- (8.7) **Geometry and spatial reasoning.** The student uses geometry to model and describe the physical world. The student is expected to
- (A) draw three-dimensional figures from different perspectives;
 - (B) use geometric concepts and properties to solve problems in fields such as art and architecture;
 - (C) use pictures or models to demonstrate the Pythagorean Theorem; and
 - (D) locate and name points on a coordinate plane using ordered pairs of rational numbers.

Objective 4: The student will demonstrate an understanding of the concepts and uses of measurement.

- (8.8) **Measurement.** The student uses procedures to determine measures of three-dimensional figures. The student is expected to
- (A) find lateral and total surface area of prisms, pyramids, and cylinders using [concrete] models and nets (two-dimensional models); and
 - (C) estimate measurements and use formulas to solve application problems involving lateral and total surface area and volume.
- (8.9) **Measurement.** The student uses indirect measurement to solve problems. The student is expected to
- (A) use the Pythagorean Theorem to solve real-life problems; and
 - (B) use proportional relationships in similar two-dimensional figures or similar three-dimensional figures to find missing measurements.

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- (8.10) **Measurement.** The student describes how changes in dimensions affect linear, area, and volume measures. The student is expected to
- (A) describe the resulting effects on perimeter and area when dimensions of a shape are changed proportionally; and
 - (B) describe the resulting effect on volume when dimensions of a solid are changed proportionally.

Objective 5: The student will demonstrate an understanding of probability and statistics.

- (8.11) **Probability and statistics.** The student applies concepts of theoretical and experimental probability to make predictions. The student is expected to
- (A) find the probabilities of dependent and independent events; and
 - (B) use theoretical probabilities and experimental results to make predictions and decisions.
- (8.12) **Probability and statistics.** The student uses statistical procedures to describe data. The student is expected to
- (A) select the appropriate measure of central tendency or range to describe a set of data and justify the choice for a particular situation;
 - (B) draw conclusions and make predictions by analyzing trends in scatterplots; and
 - (C) select and use an appropriate representation for presenting and displaying relationships among collected data, including line plots, line graphs, [stem and leaf plots,] circle graphs, bar graphs, box and whisker plots, histograms, and Venn diagrams, [with and] without the use of technology.
- (8.13) **Probability and statistics.** The student evaluates predictions and conclusions based on statistical data. The student is expected to
- (A) evaluate methods of sampling to determine validity of an inference made from a set of data; and
 - (B) recognize misuses of graphical or numerical information and evaluate predictions and conclusions based on data analysis.

Objective 6: The student will demonstrate an understanding of the mathematical processes and tools used in problem solving.

- (8.14) **Underlying processes and mathematical tools.** The student applies Grade 8 mathematics to solve problems connected to everyday experiences, investigations in other disciplines, and activities in and outside of school. The student is expected to
- (A) identify and apply mathematics to everyday experiences, to activities in and outside of school, with other disciplines, and with other mathematical topics;
 - (B) use a problem-solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness; and

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- (C) select or develop an appropriate problem-solving strategy from a variety of different types, including drawing a picture, looking for a pattern, systematic guessing and checking, acting it out, making a table, working a simpler problem, or working backwards to solve a problem.
- (8.15) **Underlying processes and mathematical tools.** The student communicates about Grade 8 mathematics through informal and mathematical language, representations, and models. The student is expected to
- (A) communicate mathematical ideas using language, efficient tools, appropriate units, and graphical, numerical, physical, or algebraic mathematical models.
- (8.16) **Underlying processes and mathematical tools.** The student uses logical reasoning to make conjectures and verify conclusions. The student is expected to
- (A) make conjectures from patterns or sets of examples and nonexamples; and
 - (B) validate his/her conclusions using mathematical properties and relationships.