

2017 STAAR Grade 6 Math Rationales

Item #	Response A/F	Response B/G	Response C/H	Response D/J
1	A is incorrect because 8°F is warmer than 0°F .	B is incorrect because -5°F is warmer than -10°F .	C is correct because the temperatures are listed in order from coldest to warmest.	D is incorrect because -10°F is colder than 0°F .
2	F is incorrect because the ordered pair $(4, 2)$ describes a point that is 4 units to the right of the origin and 2 units above the x-axis.	G is correct because the ordered pair $(-4, -2)$ describes a point that is 4 units to the left of the origin and 2 units below the x-axis.	H is incorrect because the ordered pair $(-4, 2)$ describes a point that is 4 units to the left of the origin and 2 units above the x-axis.	J is incorrect because the ordered pair $(4, -2)$ describes a point that is 4 units to the right of the origin and 2 units below the x-axis.
3	A is correct because $30 : 54$ is equivalent to $5 : 9$.	B is incorrect because $6 : 10$ is not equivalent to $5 : 9$.	C is incorrect because $10 : 45$ is not equivalent to $5 : 9$.	D is incorrect because $27 : 15$ is not equivalent to $5 : 9$.
4	F is incorrect because the values for Breakfast; $3/17 \neq 30\%$, Lunch; $4/17 \neq 10\%$, and Supper; $10/17 \neq 60\%$, do not match the percentage bar graph shown.	G is incorrect because the values for Breakfast; $4/20 \neq 30\%$, Lunch; $4/20 \neq 10\%$, and Supper; $12/20 \neq 60\%$, do not match the percentage bar graph shown.	H is correct because the values for Breakfast; $9/30 = 30\%$, Lunch; $3/30 = 10\%$, and Supper; $18/30 = 60\%$ match the percentage bar graph shown.	J incorrect because the values for Breakfast; $0/7 \neq 30\%$, Lunch; $3/7 \neq 10\%$, and Supper; $4/7 \neq 60\%$, do not match the percentage bar graph shown.
5	A is incorrect because $-100 + -10$ is -110 , not -90 .	B is correct because $-100 + 10 = -90$.	C is incorrect because $-100 + -190 = -290$, not -90 .	D is incorrect because $-100 + 190 = 90$, not -90 .
6	F is incorrect because 167.3 should be multiplied by 1.25 , not added.	G is incorrect because 167.3 should be multiplied by 1.25 , not added.	H is incorrect because 167.3 should be multiplied by 1.25 , which equals 209.125 , not 198.825 .	J is correct because 167.3 should be multiplied by 1.25 , which equals 209.125 .
7	A is incorrect because the formula for the area of a trapezoid is $A = (1/2)(b_1 + b_2)h$, so $A = (1/2)(68 + 36)(30) = 1,560$, not $3,120$.	B is correct because the formula for the area of a trapezoid is $A = (1/2)(b_1 + b_2)h$, so $A = (1/2)(68 + 36)(30) = 1,560$.	C is incorrect because the formula for the area of a trapezoid is $A = (1/2)(b_1 + b_2)h$, so $A = (1/2)(68 + 36)(30) = 1,560$, not $1,768$.	D is incorrect because the formula for the area of a trapezoid is $A = (1/2)(b_1 + b_2)h$, so $A = (1/2)(68 + 36)(30) = 1,560$, not $3,536$.
8	F is correct because the rate Liang walks, 4 miles/hour, multiplied by the time she walks, h hours, is at least 18 miles which is represented by $4h \geq 18$.	G is incorrect because the rate Liang walks, 4 miles/hour, multiplied by the time she walks, h hours, is at least 18 miles which is represented by $4h \geq 18$, not $4h \leq 18$.	H is incorrect because the rate Liang walks, 4 miles/hour, multiplied by the time she walks, h hours, is at least 18 miles which is represented by $4h \geq 18$, not $h + 4 \geq 18$.	J is incorrect because the rate Liang walks, 4 miles/hour, multiplied by the time she walks, h hours, is at least 18 miles which is represented by $4h \geq 18$, not $h + 4 \leq 18$.
9	A is incorrect because $36 \div 3 \cdot 4 = 48$, not $36 \div 12 = 3$.	B is incorrect because $(3 \cdot 3 \cdot 4) \div 4 \cdot 3 = 27$, not $36 \div 12 = 3$.	B is incorrect because $5 \cdot 6 + 2 \cdot 3 \div 3 \cdot 2 \cdot 2 = 38$, not $36 \div 12 = 3$.	D is correct because $(3 \cdot 3 \cdot 2 \cdot 2) \div (3 \cdot 2 \cdot 2) = 3$ which is equivalent to $36 \div 12 = 3$.
10	F; 55° is correct because $180^{\circ} - (75^{\circ} + 50^{\circ}) = 55^{\circ}$.	G; Students may have added $50^{\circ} + 75^{\circ}$ together to get 125° .		
11	A is incorrect because 144 should be divided by 0.45, not added to 45.	B is incorrect because 144 should be divided by 0.45, not multiplied by 0.45.	C is incorrect because 144 should be divided by 0.45, not subtracted by 45.	D is correct because $144 \div 0.45 = 320$.

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12	F is incorrect because he can use his credit card to buy the television now.	G is incorrect because he can save money and pay cash for the television later.	H is correct because he CANNOT use his debit card to buy the television now because he does not have enough money in his bank account now.	J is incorrect because he can save money and use his debit card to buy the television at a later date.
13	A is incorrect because the graph shows that a player receives 25 points for each balloon popped, which is represented by $y = 25x$, not $y = x + 25$.	B is incorrect because the graph shows that a player receives 25 points for each balloon popped, which is represented by $y = 25x$, not $x = y + 25$.	C is incorrect because the graph shows that a player receives 25 points for each balloon popped, which is represented by $y = 25x$, not $x = 25y$.	D is correct because the graph shows that a player receives 25 points for each balloon popped, which is represented by $y = 25x$.
14	F is correct because $225 - 140 = 85$.	G is incorrect because $195 - 135 = 60$, not 45.	H is incorrect because the median attendance at the fall musical was 165.	J is incorrect because the lower and upper quartiles for the attendance at the spring musical are 135 and 195.
15	A is incorrect because x pieces of paper divided by 16 students is fewer than 6 pieces for each student can be represented by $x/16 < 6$, not $x/16 \leq 6$.	B is correct because x cards divided by 16 stacks is no more than 6 cards in each stack can be represented by $x/16 \leq 6$.	C is incorrect because x shirts divided by 16 stacks is at least 6 shirts for each stack can be represented by $x/16 \geq 6$, not $x/16 \leq 6$.	D is incorrect because 16 markers divided by x classmates is fewer than 6 markers for each classmate can be represented by $16/x < 6$, not $x/16 \leq 6$.
16	F is incorrect because $(y \cdot 40) + 8 = 40 \cdot y + 8$, not $y \cdot 48$.	G is incorrect because $(y \cdot 4) \cdot 8 = y \cdot 32$, not $y \cdot 48$.	H is correct because $(y \cdot 40) + (y \cdot 8) = y \cdot 48$.	J is incorrect because $(y \cdot 4) + 8 = 4 \cdot y + 8$, not $y \cdot 48$.
17	A is correct because Megan used more solution per gallon than Desmond because $5 : 1$ is greater than $8 : 2$, which is equivalent to $4 : 1$.	B is incorrect because Megan used more solution per gallon than Desmond because $5 : 1$ is greater than $8 : 2$, which is equivalent to $4 : 1$, not because 5 mL is greater than 2 mL.	C is incorrect because Megan used more solution per gallon than Desmond because $5 : 1$ is greater than $8 : 2$, which is equivalent to $4 : 1$.	D is incorrect because Megan used more solution per gallon than Desmond because $5 : 1$ is greater than $8 : 2$, which is equivalent to $4 : 1$.
18	F is incorrect because point P is correctly placed at $-24/3$ on the number line.	G is correct because point Q is NOT correctly placed at $-9/2 = 4.5$ on the number line. The number line shows point Q at -3.5 .	H is incorrect because point R is correctly placed at $7/2$ on the number line.	J is incorrect because point S is correctly placed at $15/3$ on the number line.
19	A is incorrect because 3 multiplied by $2/3$ is equal to 1, and 1 is not between 3 and 4.	B is incorrect because 3 multiplied by $2/3$ is equal to 1, and 1 is not less than $2/3$.	C is correct because 3 multiplied by $2/3$ is equal to 1, and 1 is between $2/3$ and 3.	D is incorrect because 3 multiplied by $2/3$ is equal to 1, and 1 is not greater than 4.
20	F is incorrect because the list is not in order from least to greatest; $1/2$ is greater than $3/8$.	G is incorrect because the list is not in order from least to greatest; $15/32$ is greater than $5/16$.	H is incorrect because the list is not in order from least to greatest; $1/2$ is greater than $3/8$.	J is correct because the list is in order from least to greatest.
21	A; 5 is correct because $90 = 2 \cdot 3^2 \cdot 5$.	B; Students may have solved $2 \cdot 3^2 = 18$.		

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22	F is incorrect because the length of the screen, x , can be found by dividing the area, A , by 7, as represented by $x = A/7$, not $x = 7/A$.	G is incorrect because the length of the screen, x , can be found by dividing the area, A , by 7, as represented by $x = A/7$, not $x = A + 27$.	H is incorrect because the length of the screen, x , can be found by dividing the area, A , by 7, as represented by $x = A/7$, not $x = A - 2(7)$.	J is correct because the length of the screen, x , can be found by dividing the area, A , by 7, as represented by $x = A/7$.
23	A is incorrect because $40,820 - 33,904 = 6,916$, multiplied over 10 years is equal to 69,160, not 6,916.	B is incorrect because $40,820 - 33,904 = 6,916$, multiplied over 10 years is equal to 69,160, not 74,724.	C is incorrect because $40,820 - 33,904 = 6,916$, multiplied over 10 years is equal to 69,160, not 747,240.	D is correct because $40,820 - 33,904 = 6,916$, multiplied over 10 years is equal to 69,160.
24	F is correct because each day's number of viewers is multiplied by the factor 7 to get the next day's number of viewers.	G is incorrect because each day's number of viewers is multiplied by the factor 7 to get the next day's number of viewers, not 12,000.	H is incorrect because each day's number of viewers is multiplied by the factor 7 to get the next day's number of viewers, not 2,401.	J is incorrect because each day's number of viewers is multiplied by the factor 7 to get the next day's number of viewers, not 30.
25	A is incorrect because $8 - (-3) + 33 \div (-3) = 0$, not -22.	B is incorrect because $-3 + (-2) - (-8) - 1 = 2$, not -22.	C is incorrect because $-6 \cdot 2 - (-15) = 3$, not -22.	D is correct because $-5 \cdot 2 - 12 = -22$.
26	F is incorrect because the length is about 4 and the width is about $2 \frac{3}{4}$. The formula for volume of a rectangular prism is $V = Bh$, so $V = (4)(2 \frac{3}{4})(2)$ which is closest to 22, not 27.	G is correct because the length is about 4 and the width is about $2 \frac{3}{4}$. The formula for volume of a rectangular prism is $V = Bh$, so $V = (4)(2 \frac{3}{4})(2)$ which is closest to 22.	H is incorrect because the length is about 4 and the width is about $2 \frac{3}{4}$. The formula for volume of a rectangular prism is $V = Bh$, so $V = (4)(2 \frac{3}{4})(2)$ which is closest to 22, not 11.	J is incorrect because the length is about 4 and the width is about $2 \frac{3}{4}$. The formula for volume of a rectangular prism is $V = Bh$, so $V = (4)(2 \frac{3}{4})(2)$ which is closest to 22, not 12.
27	A is correct because a dollar saved each week multiplied by the number of weeks, x , and added to six dollars will give the correct y values in the table.	B is incorrect because one mile each week multiplied by the number of weeks, x , and added to one mile will not give the correct y values in the table.	C is incorrect because one book read each week multiplied by the number of weeks, x , and added to zero books will not give the correct y values in the table.	D is incorrect because six multiplied by the number of toy trains, x , will not give the correct y values in the table.
28	F is incorrect because 6 students sold more than 40 items, which is greater than 5 students who sold between 10 and 20 items.	G is incorrect because 11 students sold less than 30 items, which is greater than 10 students who sold more than 30 items.	H is incorrect because the most common number of items sold is 15, not 30.	J is correct because the most common number of items sold is 15.
29	A; 320 is correct because if 8 bats ate 40 grams, then each bat ate 8 grams, multiply 8 by 64 bats equals 320.	B; Students may have multiplied $40(64) = 2,560$ and not divided 2,560 by 8.		
30	F is incorrect because $30 \div (3 + x)$ is not equivalent to $(3 + x) \div 30$.	G is correct because $30 \div (3 + x) = 30 \div (x + 3)$.	H is incorrect because $30 \div (3 + x)$ is not equivalent to $(3 \div 30) + x$.	J is incorrect because $30 \div (3 + x)$ is not equivalent to $30 \div 3 + 30 \div x$.
31	A is incorrect because the formula for the area of a rectangle is $A = bh$, so $4b \leq 48$, divide both sides by 4 to get $b \leq 12$, not $b \leq 44$.	B is incorrect because the formula for the area of a rectangle is $A = bh$, so $4b \leq 48$, divide both sides by 4 to get $b \leq 12$, $b \geq 52$.	C is correct because the formula for the area of a rectangle is $A = bh$, so $4b \leq 48$, divide both sides by 4 to get $b \leq 12$.	D is incorrect because the formula for the area of a rectangle is $A = bh$, so $4b \leq 48$, divide both sides by 4 to get $b \leq 12$, not $b \geq 192$.

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32	F is incorrect because the ratio of sixth graders who write left-handed to all sixth graders is $12/150 = 0.08 = 8\%$, not 10%.	G is correct because the ratio of sixth graders who write left-handed to all sixth graders is $12/150 = 0.08 = 8\%$.	H is incorrect because the ratio of sixth graders who write left-handed to all sixth graders is $12/150 = 0.08 = 8\%$, not 5%.	J is incorrect because the ratio of sixth graders who write left-handed to all sixth graders is $12/150 = 0.08 = 8\%$, not 15%.
33	A; 444 is correct because the largest number is 961 and the smallest number is 517 and $961 - 517 = 444$.	B; Students may have used the first and last numbers in the list to get $728 - 565 = 163$.		
34	F is correct because $4 \div 5$ is NOT a true expression that represents 5 yd of border divided by 4 sections.	G is incorrect because $4\overline{)5}$ is a true expression that represents 5 yd of border divided by 4 sections.	H is incorrect because $5/4$ is a true expression that represents 5 yd of border divided by 4 sections.	J is incorrect because $5 \div 4$ is a true expression that represents 5 yd of border divided by 4 sections.
35	A is incorrect because if x is 4, $4(4) = 16$, not 4.	B is incorrect because if x is 4, $4(4) = 16$, not 1.	C is incorrect because if x is 4, $4 + 2 = 6$, not 5.	D is correct because if x is 4, $2(4) = 8$.
36	F is incorrect because $32\% = 32/100 = 8/25$, not $1/32$.	G is incorrect because $32\% = 32/100 = 8/25$, not $5/16$.	H is correct because $32\% = 32/100 = 8/25$.	J is incorrect because $32\% = 32/100 = 8/25$, not $4/125$.
37	A is incorrect because the peak of the data is at 2.	B is correct because most of the points are grouped from 0 to 2.	C is incorrect because the data distribution has a gap from 3 to 4.	D is incorrect because the data distribution is skewed right, not symmetrical.
38	F is correct because there are 3 feet in 1 yard and 6,615 divided by 3 = 2,205.	G is incorrect because there are 3 feet in 1 yard and 6,615 should be divided by 3, not multiplied by 3.	H is incorrect because there are 3 feet in 1 yard and 6,615 should be divided by 3, not multiplied by 12.	J is incorrect because there are 3 feet in 1 yard and 6,615 should be divided by 3, not divided by 9.