2017 STAAR Grade 7 Math Rationales

Item #	Response A/F	Response B/G	Response C/H	Response D/J
1	A is incorrect because 15 seeds sprouted in one packet. 15 x 6 packets = 90 seeds, which is more than 50 seeds.	B is correct because15 seeds sprouted in one packet. 15 x 6 packets = 90 seeds, which is between 50 and 100 seeds.	C is incorrect because 15 seeds sprouted in one packet. 15 x 6 packets = 90 seeds, which is not between 100 and 120 seeds.	D is incorrect because 15 seeds sprouted in one packet. 15 x 6 packets = 90 seeds, which is not all 120 seeds.
2	F is correct because the length can be found using the proportion x/18 = 15/12, which simplifies to x = 22.5.	G is incorrect because the length can be found using the proportion x/18 = 15/12, which simplifies to x = 22.5, not 8.	H is incorrect because the length can be found using the proportion x/18 = 15/12, which simplifies to x = 22.5, not 10.8.	J is incorrect because the length can be found using the proportion x/18 = 15/12, which simplifies to x = 22.5, not 30.
3	A is incorrect because 3(20 - 14) = 18, not 44.	B is incorrect because 3(12 - 14) = -6, not 6.	C is correct because 2(14 - 3) = 22.	D is incorrect because 2(14) - 3 = 25, not 22.
4	F is correct because the formula for the area of a rectangle is A = bh, so the total area of the yard minus the area where digging is not allowed can be found using A = 22(17) - 6(17) = 272.	G is incorrect because the formula for the area of a rectangle is A = bh, so the total area of the yard minus the area where digging is not allowed can be found using A = 22(17) - 6(17) = 272, not 374.	H is incorrect because the formula for the area of a rectangle is A = bh, so the total area of the yard minus the area where digging is not allowed can be found using A = 22(17) - 6(17) = 272, not 102.	J is incorrect because the formula for the area of a rectangle is A = bh, so the total area of the yard minus the area where digging is not allowed can be found using A = 22(17) - 6(17) = 272, not 59.
5	A is correct because the change can be found using 10 (1.69 + 1.69 + 1.49 + 1.09 + 0.48) = 3.56.	B is incorrect because the change can be found using 10 (1.69 + 1.69 + 1.49 + 1.09 + 0.48) = 3.56, not 6.44.	C is incorrect because the change can be found using 10 (1.69 + 1.69 + 1.49 + 1.09 + 0.48) = 3.56, not 5.25.	D is incorrect because the change can be found using 10 (1.69 + 1.69 + 1.49 + 1.09 + 0.48) = 3.56, not 4.75.
6	F is incorrect because the range of the data for Farm Y, which is 30 - 5 = 25, is less than the range of the data for Farm X, which is 35 - 4 = 31.	G is incorrect because the third quartile of the data for Farm Y, which is 27, is greater than the third quartile of the data for Farm X, which is 24.	H is correct because the median of the data for Farm Y, which is 18, is greater than the median of the data for Farm X, which is 17.	J is incorrect because the first quartile of the data for Farm Y, which is 12, is less than the first quartile of the data for Farm X, which is 15.
7	A is incorrect because 25 cards multiplied by the number of weeks, w, added to 200 cards is greater than 750 is represented by the inequality 25w + 200 > 750, not 200w + 25 < 750.	B is incorrect because 25 cards multiplied by the number of weeks, w, added to 200 cards is greater than 750 is represented by the inequality 25w + 200 > 750, not 25w + 200 < 750.	C is incorrect because 25 cards multiplied by the number of weeks, w, added to 200 cards is greater than 750 is represented by the inequality 25w + 200 > 750, not 200w + 25 > 750.	D is correct because 25 cards multiplied by the number of weeks, w, added to 200 cards is greater than 750 is represented by the inequality 25w + 200 > 750.
8	F is incorrect because the formula for the circumference of a circle is C = 2πr, so C = 2(π)(2.5) ≈ 2(3.14)(2.5) = 15.7, not 7.85.	G is correct because the formula for the circumference of a circle is C = 2πr, so C = 2(π)(2.5) ≈ 2(3.14)(2.5) = 15.7.	H is incorrect because the formula for the circumference of a circle is C = 2πr, so C = 2(π)(2.5) ≈ 2(3.14)(2.5) = 15.7, not 19.63.	J is incorrect because the formula for the circumference of a circle is C = 2πr, so C = 2(π)(2.5) ≈ 2(3.14)(2.5) = 15.7, not 31.4.
9	A is incorrect because d = 55*t* does represent a car traveling at 55 miles per hour.	B is incorrect because the table shows values of time and distance that do represent a car traveling at 55 miles per hour.	C is correct because a car traveling 160 miles in 3 hours does NOT represent a car traveling at 55 miles per hour.	D is incorrect because the graph does represent a car traveling at 55 miles per hour.

2017 STAAR Grade 7 Math Rationales

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10	F is incorrect because 3 liters = 3,000 milliliters and if there are 29.6 milliliters in 1 fluid ounce, then the number of fluid ounces is 3,000/29.6, which is closest to 101, not 89.	G is correct because 3 liters = 3,000 milliliters and if there are 29.6 milliliters in 1 fluid ounce, then the number of fluid ounces is 3,000/29.6, which is closest to 101.	H is incorrect because 3 liters = 3,000 milliliters and if there are 29.6 milliliters in 1 fluid ounce, then the number of fluid ounces is 3,000/29.6, which is closest to 101, not 10.	J is incorrect because 3 liters = 3,000 milliliters and if there are 29.6 milliliters in 1 fluid ounce, then the number of fluid ounces is 3,000/29.6, which is closest to 101, not 33.
11	A is incorrect because there are 5 blue out of 15 total marbles in the first bag and 2 blue out of 9 total marbles in the second bag, so (5/15)(2/9) = 10/135, which simplifies to 2/27, not 5/9.	B is incorrect because there are 5 blue out of 15 total marbles in the first bag and 2 blue out of 9 total marbles in the second bag, so (5/15)(2/9) = 10/135, which simplifies to 2/27, not 1/135.	C is incorrect because there are 5 blue out of 15 total marbles in the first bag and 2 blue out of 9 total marbles in the second bag, so (5/15)(2/9) = 10/135, which simplifies to 2/27, not 1/6.	D is correct because there are 5 blue out of 15 total marbles in the first bag and 2 blue out of 9 total marbles in the second bag, so (5/15)(2/9) = 10/135, which simplifies to 2/27.
12	F; 11.75 is correct because 47.00 ÷ 4 = 11.75.	G; Students may have multiplied 47.00 x 4 = 188.		
13	A is correct because the formula for volume of a rectangular prism is V = Bh, so V = (3)(3)(3) = 27 for each cube, and the combined volume of the two number cubes is 54.	B is incorrect because the formula for volume of a rectangular prism is V = Bh, so V = (3)(3)(3) = 27 for each cube, and the combined volume of the two number cubes is 54, not 18.	C is incorrect because the formula for volume of a rectangular prism is V = Bh, so V = (3)(3)(3) = 27 for each cube, and the combined volume of the two number cubes is 54, not 9.	D is incorrect because the formula for volume of a rectangular prism is V = Bh, so V = (3)(3)(3) = 27 for each cube, and the combined volume of the two number cubes is 54, not 27.
14	F is incorrect because the price was reduced by $15, and 15/60 is 25%, not 15%.	G is correct because the price was reduced by $15, and 15/60 is 25%.	H is incorrect because the price was reduced by $15, and 15/60 is 25%, not 75%.	J is incorrect because the price was reduced by $15, and 15/60 is 25%, not 40%.
15	A is incorrect because (9 + 4 + 3)/50 = 16/50 = 32% of students chose red, yellow, or orange as their favorite color, which is more than 30%.	B is incorrect because 4/50 = 8% of students chose pink as their favorite color, which is less than 1/10 = 10%.	C is correct because 9/50 = 18% of students chose blue as their favorite color.	D is incorrect because (7 + 8 + 6)/50 = 42% of students chose blue as their favorite color, not 2/5 = 40%.
16	F is incorrect because using the equation y = 5x does not generate the correct y values in the table.	G is incorrect because using the equation y = x + 5 does not generate the correct y values in the table.	H is incorrect because using the equation y = x + 470 does not generate the correct y values in the table.	J is correct because using the equation y = 94x generates the correct y values in the table.
17	A is incorrect because the spinner can land on an even number 3 times out of 8. So 3/8 multiplied by 120 times equals 45, not 75.	B is correct because the spinner can land on an even number 3 times out of 8. So 3/8 multiplied by 120 times equals 45.	C is incorrect because the spinner can land on an even number 3 times out of 8. So 3/8 multiplied by 120 times equals 45, not 15.	D is incorrect because the spinner can land on an even number 3 times out of 8. So 3/8 multiplied by 120 times equals 45, not 40.
18	F is correct because the model represents 4x + 12 ≤ -8, so 4x ≤ -20, and dividing both sides by 4 simplifies to x ≤ -5.	G is incorrect because the model represents 4x + 12 ≤ -8, so 4x ≤ -20, and dividing both sides by 4 simplifies to x ≤ -5, not x ≤ 5.	H is incorrect because the model represents 4x + 12 ≤ -8, so 4x ≤ -20, and dividing both sides by 4 simplifies to x ≤ -5, not x ≤ 1.	J is incorrect because the model represents 4x + 12 ≤ -8, so 4x ≤ -20, and dividing both sides by 4 simplifies to x ≤ -5, not x ≤ -14.

2017 STAAR Grade 7 Math Rationales

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19	A is incorrect because the area of the semicircle + triangle is A = $(1/2)(\pi)(4)^2$ + $(1/2)(7)(8) \approx (1/2)(3.14)(4)^2$ + $(1/2)(7)(8) = 53$, not 78.	B is incorrect because the area of the semicircle + triangle is A = $(1/2)(\pi)(4)^2$ + $(1/2)(7)(8) \approx (1/2)(3.14)(4)^2$ + $(1/2)(7)(8) = 53$, not 81.	C is incorrect because the area of the semicircle + triangle is A = $(1/2)(\pi)(4)^2$ + $(1/2)(7)(8) \approx (1/2)(3.14)(4)^2$ + $(1/2)(7)(8) = 53$, not 106.	D is correct because the area of the semicircle + triangle is A = $(1/2)(\pi)(4)^2$ + $(1/2)(7)(8) \approx (1/2)(3.14)(4)^2$ + $(1/2)(7)(8) = 53$.
20	F is incorrect because the monthly savings is 16% of 2,250, which is 360, so the statement is true.	G is incorrect because 35% of 2,250 is 787.5 and 3% of 2,250 is 67.5 for a total of 855, which is less than 900, so the statement is true.	H is correct because 5% of 2,250 is 112.5, 6% of 2,250 is 135, and 11% of 2,250 is 247.5 for a total of 495, not 485, so the statement is NOT true.	J is incorrect because 17.5% of 2,250 is 393.75 and 6.5% of 2,250 is 146.25 for a total of 540, which is more than 530, so the statement is true.
21	A is incorrect because the number of megabytes can be found using the proportion 264/528 = 35/x, which simplifies to x = 70, not 18.	B is correct because the number of megabytes can be found using the proportion 264/528 = 35/x, which simplifies to x = 70.	C is incorrect because the number of megabytes can be found using the proportion 264/528 = 35/x, which simplifies to x = 70, not 8.	D is incorrect because the number of megabytes can be found using the proportion 264/528 = 35/x, which simplifies to x = 70, not 23.
22	F; 18 is correct because the formula for volume of a triangular prism is V = Bh, so the area of the base can be found using B(12) = 216, and dividing both sides by 12 simplifies to B = 18.	G; Students may have multiplied 216(12) = 2,592, instead of dividing 216 by 12.		
23	A is correct because 3 3/4 bags times 125.3 square feet = 3.75(125.3) = 469.875.	B is incorrect because 3 3/4 bags times 125.3 square feet = 3.75(125.3) = 469.875, not 375.225.	C is incorrect because 3 3/4 bags times 125.3 square feet = 3.75(125.3) = 469.875, not 407.225.	D is incorrect because 3 3/4 bags times 125.3 square feet = 3.75(125.3) = 469.875, not 418.502.
24	F is incorrect because 2x + (3x - 10) + 50 = 180, which simplifies to 5x = 140, and dividing both sides by 5 simplifies to x = 28, not 25.	G is incorrect because 2x + (3x - 10) + 50 = 180, which simplifies to 5x = 140, and dividing both sides by 5 simplifies to x = 28, not 20.	H is incorrect because 2x + (3x - 10) + 50 = 180, which simplifies to 5x = 140, and dividing both sides by 5 simplifies to x = 28, not 10.	J is correct because 2x + (3x - 10) + 50 = 180, which simplifies to 5x = 140, and dividing both sides by 5 simplifies to x = 28.
25	A is incorrect because the graph shows that every 4 feet on the statue is equal to 4 inches on the model.	B is incorrect because the graph shows that every 2 feet on the statue is equal to 12 inches on the model.	C is correct because the graph shows that every 1 foot on the statue is equal to 2 inches on the model.	D is incorrect because the graph shows that every 12 feet on the statue is equal to 2 inches on the model.
26	F is correct because 25% of 30, which is 7.5, is used on games and 5% of 30, which is 1.5, is used on research. The difference in hours is 7.5 - 1.5 = 6.	G is incorrect because 25% of 30, which is 7.5, is used on games and 5% of 30, which is 1.5, is used on research. The difference in hours is 7.5 - 1.5 = 6, not 20.	H is incorrect because 25% of 30, which is 7.5, is used on games and 5% of 30, which is 1.5, is used on research. The difference in hours is 7.5 - 1.5 = 6, not 7.5.	J is incorrect because 25% of 30, which is 7.5, is used on games and 5% of 30, which is 1.5, is used on research. The difference in hours is 7.5 - 1.5 = 6, not 1.5.
27	A is incorrect because 30.16 = 17.56 + 5x, which simplifies to 12.6 = 5x, and dividing both sides by 5 simplifies to x = 2.52, not 6.032.	B is incorrect because 30.16 = 17.56 + 5x, which simplifies to 12.6 = 5x, and dividing both sides by 5 simplifies to x = 2.52, not 3.512.	C is incorrect because 30.16 = 17.56 + 5x, which simplifies to 12.6 = 5x, and dividing both sides by 5 simplifies to x = 2.52, not 12.6.	D is correct because 30.16 = 17.56 + 5x, which simplifies to 12.6 = 5x, and dividing both sides by 5 simplifies to x = 2.52.

2017 STAAR Grade 7 Math Rationales

Item #	Response A/F	Response B/G	Response C/H	Response D/J
28	F is incorrect because there are 32 possible seats at tables with red tablecloths out of a total of 96 possible seats. The probability is 32/96 = 1/3, not 1/2.	G is correct because there are 32 possible seats at tables with red tablecloths out of a total of 96 possible seats. The probability is 32/96 = 1/3.	H is incorrect because there are 32 possible seats at tables with red tablecloths out of a total of 96 possible seats. The probability is 32/96 = 1/3, not 1/4.	J is incorrect because there are 32 possible seats at tables with red tablecloths out of a total of 96 possible seats. The probability is 32/96 = 1/3, not 1/8.
29	A is incorrect because the total surface area is the sum of all the rectangular areas found in the net which is 2(7.5)(11.5) + 2(3)(7.5) + 2(3)(11.5) = 286.5, not 143.25.	B is incorrect because the total surface area is the sum of all the rectangular areas found in the net which is 2(7.5)(11.5) + 2(3)(7.5) + 2(3)(11.5) = 286.5, not 241.5.	C is incorrect because the total surface area is the sum of all the rectangular areas found in the net which is 2(7.5)(11.5) + 2(3)(7.5) + 2(3)(11.5) = 286.5, not 258.75.	D is correct because the total surface area is the sum of all the rectangular areas found in the net which is 2(7.5)(11.5) + 2(3)(7.5) + 2(3)(11.5) = 286.5.
30	F; 9127.50 is correct because 6% of 152,125 is (0.06)(152,125) = 9,127.5.	G; Students may have placed the decimal point incorrectly in the grid as 912.75.		
31	A is incorrect because 180 - 12 frogs do not have spots, so using the proportion 168/180 = x/1,200, which simplifies to x = 1,120, not 80.	B is incorrect because 180 - 12 frogs do not have spots, so using the proportion 168/180 = x/1,200, which simplifies to x = 1,120, not 168.	C is incorrect because 180 - 12 frogs do not have spots, so using the proportion 168/180 = x/1,200, which simplifies to x = 1,120, not 1,280.	D is correct because 180 - 12 frogs do not have spots, so using the proportion 168/180 = x/1,200, which simplifies to x = 1,120.
32	F is incorrect because the formula for area of a circle is $A = \pi r^2$, so $A = \pi(8)^2 \approx (3.14)(8)^2 = 200.96$, not 100.48.	G is incorrect because the formula for area of a circle is $A = \pi r^2$, so $A = \pi(8)^2 \approx (3.14)(8)^2 = 200.96$, not 50.24.	H is correct because the formula for area of a circle is $A = \pi r^2$, so $A = \pi(8)^2 \approx (3.14)(8)^2 = 200.96$.	G is incorrect because the formula for area of a circle is $A = \pi r^2$, so $A = \pi(8)^2 \approx (3.14)(8)^2 = 200.96$, not 803.84.
33	A is correct because 1.25 each for x cups of lemonade minus 6.50 for supplies is more than 50; this can be represented by 1.25x - 6.50 > 50.	B is incorrect because 1.25 each for x cups of lemonade minus 6.50 for supplies is more than 50, this can be represented by 1.25x - 6.50 > 50, not 1.25x + 6.50 > 50.	C is incorrect because 1.25 each for x cups of lemonade minus 6.50 for supplies is more than 50; this can be represented by 1.25x - 6.50 > 50, not 1.0125x - 6.50 > 50.	D is incorrect because 1.25 each for x cups of lemonade minus 6.50 for supplies is more than 50, this can be represented by 1.25x - 6.50 > 50, not 1.25 + 6.50x > 50.
34	F is incorrect because the distribution of the data for Team A and Team B are not approximately symmetrical.	G is incorrect because the median height of the players on Team B, which is 79, is greater than the median height of the players on Team A, which is 78.	H is correct because the range of player heights on Team B, which is 12, is greater than the range of player heights on Team A, which is 11.	J is incorrect because the mode height of the players on Team B, which is 80, is greater than the mode height of the players on Team A, which is 78.
35	A; 70 is correct because if 1 centimeter represents 20 kilometers, then 3.5(20) = 70.	B; Students may have multiplied 3.5(20) incorrectly to get 60.5.		
36	F is incorrect because the amount of fabric can be found using 10 ½ - (2 ½ + 4 ¼) = 3 ¾, not 4 ¼.	G is incorrect because the amount of fabric can be found using 10 ½ - (2 ½ + 4 ¼) = 3 ¾, not 3 ¼.	H is correct because the amount of fabric can be found using 10 ½ - (2 ½ + 4 ¼) = 3 ¾.	J is incorrect because the amount of fabric can be found using 10 ½ - (2 ½+ 4 ¼) = 3 ¾, not 6 ¾.

2017 STAAR Grade 7 Math Rationales

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37	A is correct because the probability of randomly selecting a daisy from Bouquet S, which is 13/30, is less than the probability of selecting a daisy from Bouquet T, which is 13/13 or 1.	B is incorrect because the probability of selecting a daisy in Bouquet S is 13/30, not 1.	C is incorrect because the probability of randomly selecting a daisy from Bouquet S, which is 13/30, is not equal to the probability of selecting a daisy from Bouquet T, which is 13/13 or 1.	D is incorrect because the probability of randomly selecting a daisy from Bouquet S is 13/30, not 1/3.
38	F is incorrect because the total cost of the trip, y, is equal to the initial charge of 2.50 plus 2.65 multiplied by the number of miles, x. This situation is represented by the equation y = 2.65x + 2.50, not y = 2.50x + 2.65.	G is incorrect because the total cost of the trip, y, is equal to the initial charge of 2.50 plus 2.65 multiplied by the number of miles, x. This situation is represented by the equation y = 2.65x + 2.50, not y = 2.65(x + 2.50).	H is incorrect because the total cost of the trip, y, is equal to the initial charge of 2.50 plus 2.65 multiplied by the number of miles, x. This situation is represented by the equation y = 2.65x + 2.50, not y = 2.65x - 2.50.	J is correct because the total cost of the trip, y, is equal to the initial charge of 2.50 plus 2.65 multiplied by the number of miles, x. This situation is represented by the equation y = 2.65x + 2.50.
39	A is incorrect because similar figures are not necessarily the same size, but are the same shape.	B is incorrect because similar figures are not necessarily the same size, but are the same shape.	C is correct because the corresponding angles in similar figures are congruent.	D is incorrect because the lengths of corresponding sides in similar figures are proportional.
40	F is incorrect because the number of girls who like country music, which is 10, is equal to the number of girls who like rap and rock music combined, which is 4 + 6 = 10.	G is incorrect because the number of girls who like rock music, which is 6, is equal to the number of boys who like rock music, which is 6.	H is incorrect because the number of boys who like country music, which is 3, is less than the number of boys who like rock music, which is 6.	J is correct because the number of boys who like rock music, which is 6, is more than the number of girls who like rap music, which is 4.