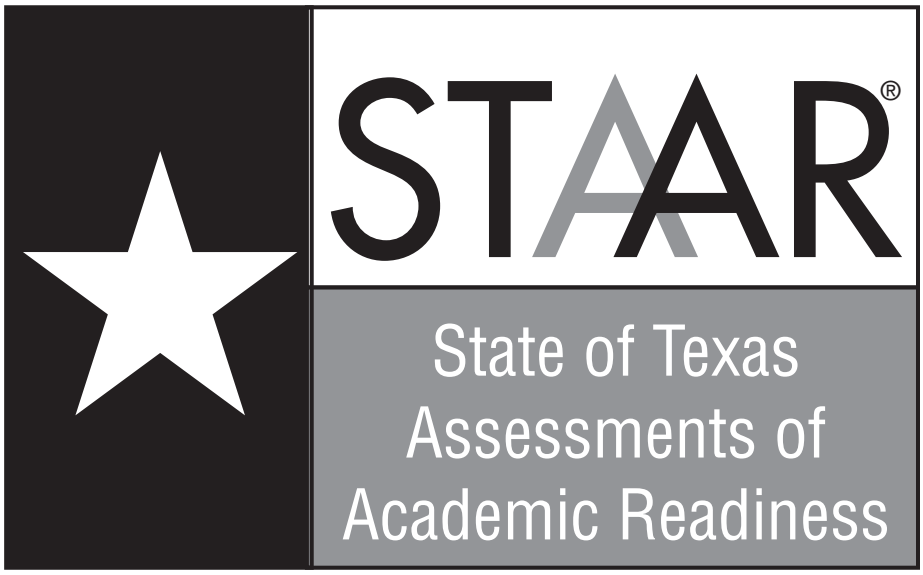


GRADE 6

Mathematics

Administered May 2017

RELEASED

STAAR GRADE 6 MATHEMATICS REFERENCE MATERIALS

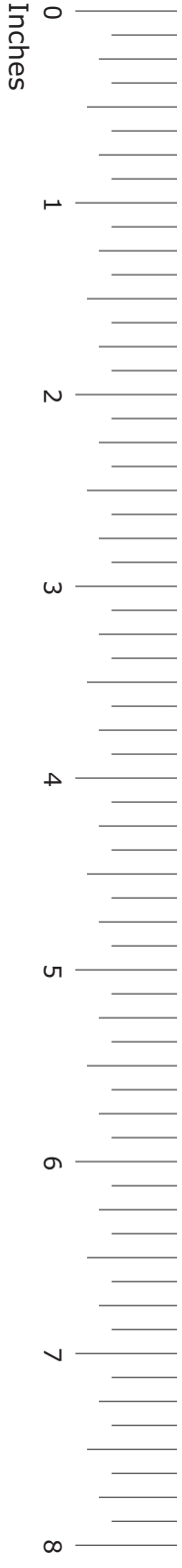
STAAR® State of Texas Assessments of Academic Readiness

AREA

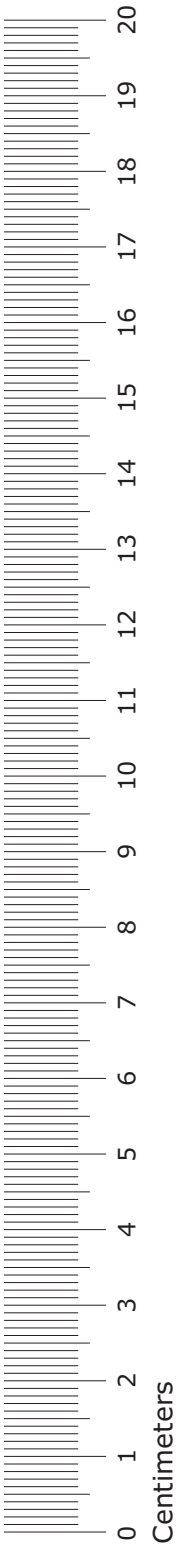
Triangle	$A = \frac{1}{2}bh$
Rectangle or parallelogram	$A = bh$
Trapezoid	$A = \frac{1}{2}(b_1 + b_2)h$

VOLUME

Rectangular prism	$V = Bh$



STAAR GRADE 6 MATHEMATICS REFERENCE MATERIALS



LENGTH

Customary	Metric
1 mile (mi) = 1,760 yards (yd)	1 kilometer (km) = 1,000 meters (m)
1 yard (yd) = 3 feet (ft)	1 meter (m) = 100 centimeters (cm)
1 foot (ft) = 12 inches (in.)	1 centimeter (cm) = 10 millimeters (mm)

VOLUME AND CAPACITY

Customary	Metric
1 gallon (gal) = 4 quarts (qt)	1 liter (L) = 1,000 milliliters (mL)
1 quart (qt) = 2 pints (pt)	
1 pint (pt) = 2 cups (c)	
1 cup (c) = 8 fluid ounces (fl oz)	

WEIGHT AND MASS

Customary	Metric
1 ton (T) = 2,000 pounds (lb)	1 kilogram (kg) = 1,000 grams (g)
1 pound (lb) = 16 ounces (oz)	1 gram (g) = 1,000 milligrams (mg)

DIRECTIONS

Read each question carefully. For a multiple-choice question, determine the best answer to the question from the four answer choices provided. For a griddable question, determine the best answer to the question. Then fill in the answer on your answer document.

1 Which list shows the temperatures in order from coldest to warmest in degrees Fahrenheit?

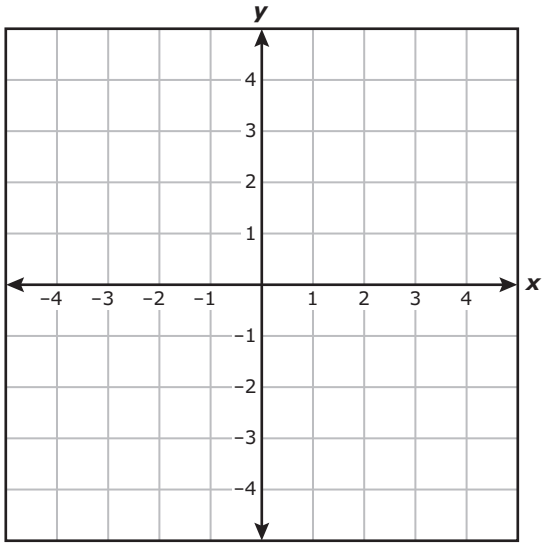
A −10°F 8°F −5°F 0°F

B −5°F −10°F 0°F 8°F

C −10°F −5°F 0°F 8°F

D 0°F −5°F 8°F −10°F

2 A coordinate grid is shown below.



Which ordered pair describes a point that is located 4 units to the left of the origin and 2 units below the *x*-axis?

F (4, 2)

G (−4, −2)

H (−4, 2)

J (4, −2)

---

3 A housepainter mixed 5 gal of blue paint with every 9 gal of yellow paint in order to make a green paint. Which ratio of gallons of blue paint to gallons of yellow paint will make the same shade of green paint?

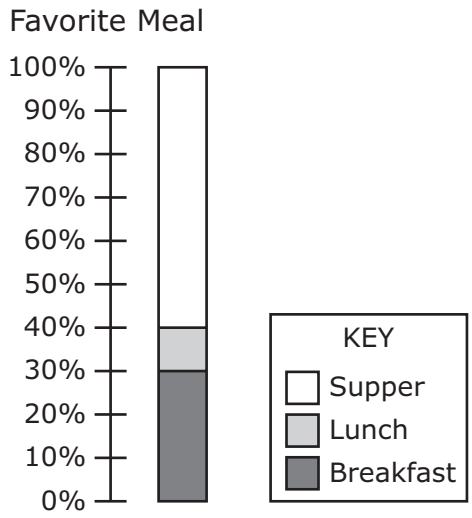
A 30 : 54

B 6 : 10

C 10 : 45

D 27 : 15

4 The students in a class were each asked to name their favorite meal of the day. The results are shown in this percentage bar graph.



Which table could be represented by the percentage bar graph?

F

Student Results

Meal	Number of Students
Breakfast	3
Lunch	4
Supper	10

H

Student Results

Meal	Number of Students
Breakfast	9
Lunch	3
Supper	18

G

Student Results

Meal	Number of Students
Breakfast	4
Lunch	4
Supper	12

J

Student Results

Meal	Number of Students
Breakfast	0
Lunch	3
Supper	4

5 What value of x makes this equation true?

$$-90 = -100 + x$$

A -10

B 10

C -190

D 190

---

6 A team of workers took 167.3 hours to complete a task. A smaller team of workers will complete the same task, but it will take them 1.25 times as long as it took the first team.

Based on this information, which statement is true?

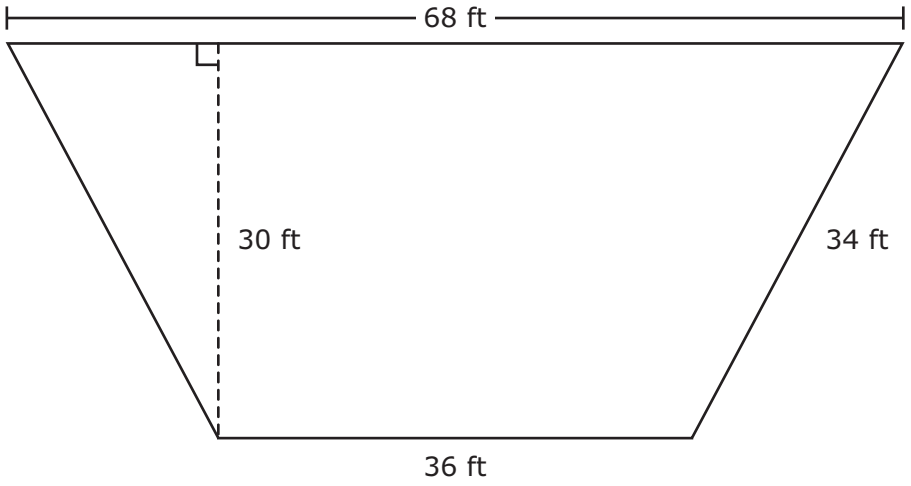
F The task will take the smaller team of workers 168.55 hours to complete, because $167.3 + 1.25 = 168.55$.

G The task will take the smaller team of workers 179.8 hours to complete, because $167.3 + 1.25 = 179.8$.

H The task will take the smaller team of workers 198.825 hours to complete, because $167.3 \times 1.25 = 198.825$.

J The task will take the smaller team of workers 209.125 hours to complete, because $167.3 \times 1.25 = 209.125$.

7 The playground at a park is shaped like a trapezoid. The dimensions of the playground are shown in the diagram.



What is the area of the playground in square feet?

A 3,120 ft^2

B 1,560 ft^2

C 1,768 ft^2

D 3,536 ft^2

---

8 Liang has a goal of walking at least 18 miles. She walks at a rate of 4 miles per hour. Which inequality can Liang use to find h, the number of hours she should walk in order to meet or exceed her goal?

F $4h \geq 18$

G $4h \leq 18$

H $h + 4 \geq 18$

J $h + 4 \leq 18$

9 Leon wrote an expression that is equivalent to $(30 + 6) \div 12$. Which expression could be the one Leon wrote?

A $36 \div 3 \cdot 4$

B $(3 \cdot 3 \cdot 4) \div 4 \cdot 3$

C $5 \cdot 6 + 2 \cdot 3 \div 3 \cdot 2 \cdot 2$

D $(3 \cdot 3 \cdot 2 \cdot 2) \div (3 \cdot 2 \cdot 2)$

---

10 In triangle *XYZ* the measure of angle *YXZ* is 50°, and the measure of angle *XYZ* is 75°. What is the measure of angle *XZY* in degrees?

Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

---

11 Customers at an ice-cream shop took a survey. The results showed that 144 customers rated the shop as being "very satisfactory." This number represented 45% of the total number of customers who took the survey.

What was the total number of customers who took the survey?

A 189

B 65

C 99

D 320

12 Mr. Lloyd wants to buy a new television, but he does not have enough money in his bank account to pay for one. Which of these is NOT an option for Mr. Lloyd?

F He can use his credit card to buy the television now.

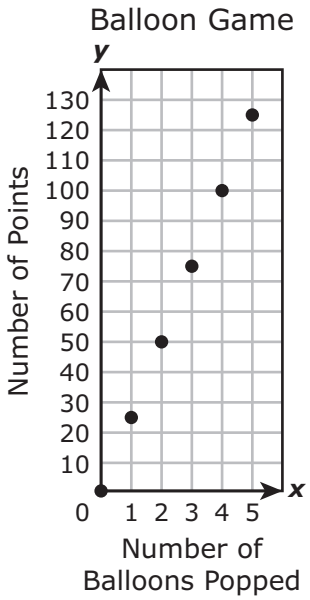
G He can save money and pay cash for the television at a later date.

H He can use his debit card to buy the television now.

J He can save money and use his debit card to buy the television at a later date.

---

13 The graph shows the number of points, y, a player earns in a balloon game based on the number of balloons the player pops, x.



Which equation best represents the relationship between x and y?

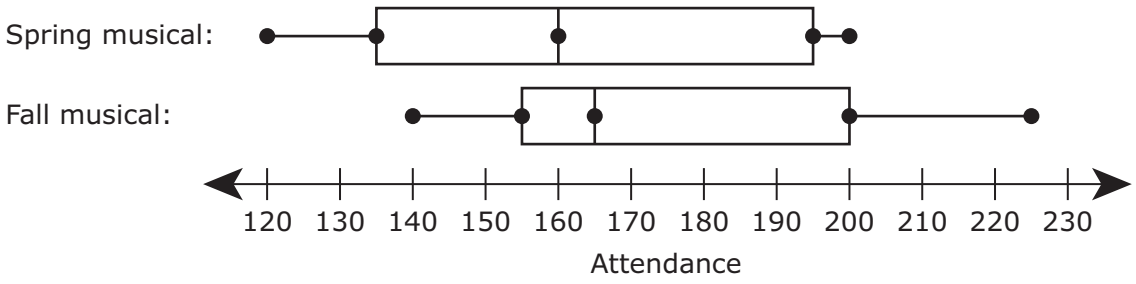
A $y = x + 25$

B $x = y + 25$

C $x = 25y$

D $y = 25x$

14 The box plots summarize the attendance for the spring musical and the fall musical. Each musical was performed for six evenings.



Which statement best describes the data represented in the box plots?

F The range in attendance for the fall musical is 85.

G The interquartile range for the spring musical is 45.

H For half the evenings at the fall musical, the attendance was less than 160 people.

J For half the evenings at the spring musical, the attendance was between 155 and 200 people.

---

15 Jamal wrote the inequality $\frac{x}{16} \leq 6$. Which situation is best represented by this inequality?

A Jamal divided x pieces of paper among 16 students, and each student received fewer than 6 pieces of paper.

B Jamal placed x cards in 16 stacks, and there were no more than 6 cards in each stack.

C Jamal separated x shirts into 6 stacks, and each stack had at least 16 shirts.

D Jamal shared 16 markers with x classmates, and each classmate had fewer than 6 markers.

16 Which expression is equivalent to $y \cdot 48$?

F $(y \cdot 40) + 8$

G $(y \cdot 4) \cdot 8$

H $(y \cdot 40) + (y \cdot 8)$

J $(y \cdot 4) + 8$

---

17 Megan and Desmond each added the same amount of water to their aquariums. Megan mixed 5 mL of a chemical solution with every gallon of water for her aquarium. Desmond mixed 8 mL of the chemical solution with every 2 gallons of water for his aquarium.

Which of these statements is true?

A Megan used more solution per gallon of water than Desmond, because 5 : 1 is greater than 8 : 2.

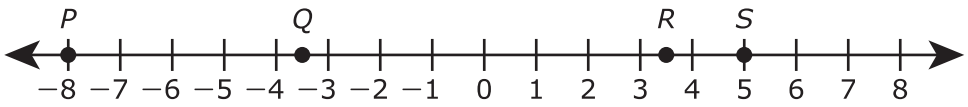
B Megan used more solution per gallon of water than Desmond, because 5 mL is greater than 2 mL.

C Desmond used more solution per gallon of water than Megan, because 8 mL is greater than 5 mL.

D Desmond used more solution per gallon of water than Megan, because 8 : 2 is greater than 5 : 1.

18 Dana placed the following points on a number line.

- Point P at $-\frac{24}{3}$
- Point Q at $-\frac{9}{2}$
- Point R at $\frac{7}{2}$
- Point S at $\frac{15}{3}$



Which point is NOT correctly placed on this number line?

F Point P

G Point Q

H Point R

J Point S

19 Which statement about 3 multiplied by $\frac{2}{3}$ must be true?

A The product is between 3 and 4.

B The product is less than $\frac{2}{3}$.

C The product is between $\frac{2}{3}$ and 3.

D The product is greater than 4.

---

20 Elida will use six different wires for a science project. The fractions represent the diameters of these wires in inches.

$$\frac{7}{16},\ \frac{1}{2},\ \frac{3}{8},\ \frac{9}{32},\ \frac{5}{16},\ \frac{15}{32}$$

Which list shows the diameters of the wires in order from least to greatest?

F $\frac{1}{2},\ \frac{3}{8},\ \frac{7}{16},\ \frac{5}{16},\ \frac{15}{32},\ \frac{9}{32}$

G $\frac{9}{32},\ \frac{15}{32},\ \frac{5}{16},\ \frac{7}{16},\ \frac{3}{8},\ \frac{1}{2}$

H $\frac{1}{2},\ \frac{3}{8},\ \frac{5}{16},\ \frac{7}{16},\ \frac{9}{32},\ \frac{15}{32}$

J $\frac{9}{32},\ \frac{5}{16},\ \frac{3}{8},\ \frac{7}{16},\ \frac{15}{32},\ \frac{1}{2}$

21 Mr. Gonzales showed students part of the prime factorization of 90. One factor is missing.

$2 \cdot 3^2 \cdot \_\_$

What number completes this prime factorization?

Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

---

22 A rectangular computer screen has an area of A square inches. The width of the computer screen is 7 inches. Which equation represents x, the length of the computer screen in inches?

F $x = \frac{7}{A}$

G $x = A + 27$

H $x = A - 2(7)$

J $x = \frac{A}{7}$

23 Yvonne is researching the effect of education on annual income. A summary of her research is shown in the table.

Effect of Education on Annual Income

Level of Education	Annual Income (dollars)
High school diploma	33,904
Associate's degree	40,820
Bachelor's degree	55,432

Based on the data in the table, how much more does a person with an associate's degree earn than a person with only a high school diploma over 10 years?

A $6,916

B $74,724

C $747,240

D $69,160

---

24 The list shows the number of viewers of an online music video each day for 5 consecutive days.

5 35 245 1,715 12,005

By what factor did the number of viewers change each day from the first day to the fifth day?

F 7

G 12,000

H 2,401

J 30

25 Which expression has a value of -22?

A $8 - (-3) + 33 \div (-3)$

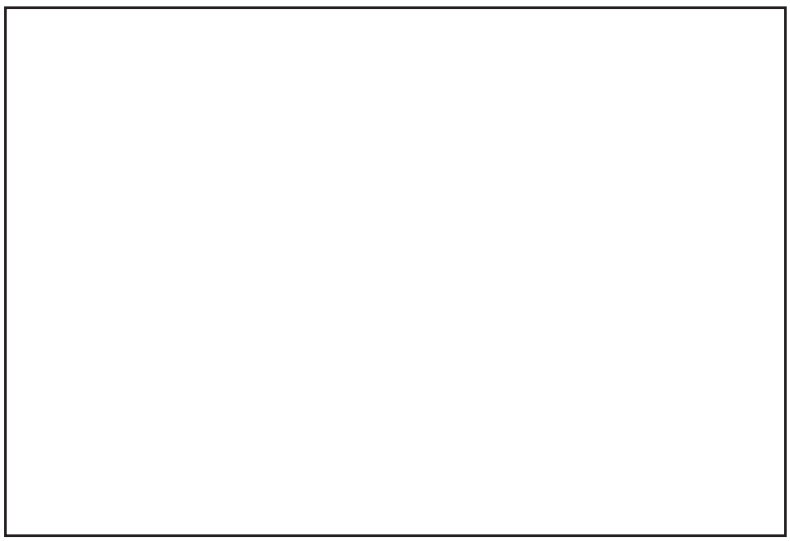
B $-3 + (-2) - (-8) - 1$

C $-6 \cdot 2 - (-15)$

D $-5 \cdot 2 - 12$

---

26 The rectangle shown represents the base of a rectangular prism. Use the ruler provided to measure the length and width of the rectangle to the nearest $\frac{1}{4}$ inch.



The height of the prism is 2 inches. Which measurement is closest to the volume of the prism in cubic inches?

F $27\ \text{in.}^3$

G $22\ \text{in.}^3$

H $11\ \text{in.}^3$

J $12\ \text{in.}^3$

27 Mr. Martínez asked his students to write a situation that could describe the relationship between all the values of x and y in the table.

x	0	1	2	3
y	6	7	8	9

Which situation best describes the relationship between all the values of x and y in the table?

A Rachel had six dollars and then started to save one dollar each week.

B Beatriz ran one mile the first week and one mile each week after that.

C James read zero books in six months and then started to read one book each week.

D Marion has six times the number of toy trains that Tony has.

---

28 The total number of items sold by each student who participated in a fund-raiser is shown in the stem and leaf plot.

Items Sold

Stem	Leaf
1	2 5 5 5 8
2	2 2 3 6 7 9
3	0 0 1 1 2 6
4	1 2 8 8 9 9

1|2 means 12 items.

Which statement is best supported by the data in the stem and leaf plot?

F The number of students who sold between 10 and 20 items is greater than the number of students who sold more than 40 items.

G The number of students who sold more than 30 items is greater than the number of students who sold fewer than 30 items.

H The most common number of items sold is 30.

J The most common number of items sold is 15.

29 In Austin, Texas, 8 bats ate 40 grams of insects in one night. At this rate, how many grams of insects could 64 bats eat in one night?

Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

---

30 Which expression is equivalent to $30 \div (3 + x)$?

F $(3 + x) \div 30$

G $30 \div (x + 3)$

H $(3 \div 30) + x$

J $30 \div 3 + 30 \div x$

---

31 Saritha will construct a rectangle that has a height of 4 units and an area of up to 48 square units. Which inequality represents all the possible lengths in units of the bases, b, that Saritha can use to construct this rectangle?

A $b \leq 44$

B $b \geq 52$

C $b \leq 12$

D $b \geq 192$

32 There are 90 girls and 60 boys in the sixth grade at a middle school. Of these students, 9 girls and 3 boys write left-handed. What percentage of the sixth graders at this middle school write left-handed?

F 10%

G 8%

H 5%

J 15%

---

33 The list shows the area in square feet of each apartment available for rent in a building.

565, 961, 867, 517, 627, 714, 517, 728

What is the range of these areas in square feet?

Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

---

34 Amy has 5 yd of border to put around a garden. She uses all the border to make four sections that are the same length. Which expression does NOT equal the length of one of these sections in yards?

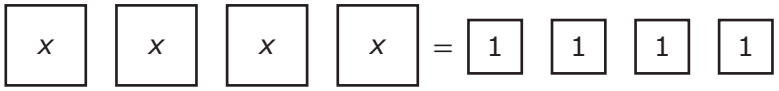
F $4 \div 5$

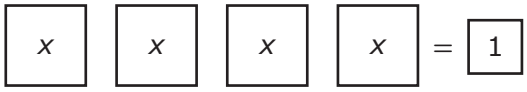
G $4\overline{)5}$

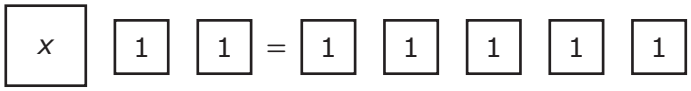
H $\frac{5}{4}$

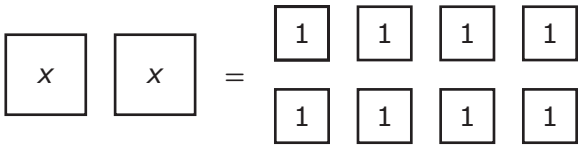
J $5 \div 4$

35 Which model shows two equal expressions when the value of x is 4?

A 

B 

C 

D 

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36 A company spent 32% of its annual budget developing a new machine. What fraction of the company's budget was spent developing the new machine?

F $\frac{1}{32}$

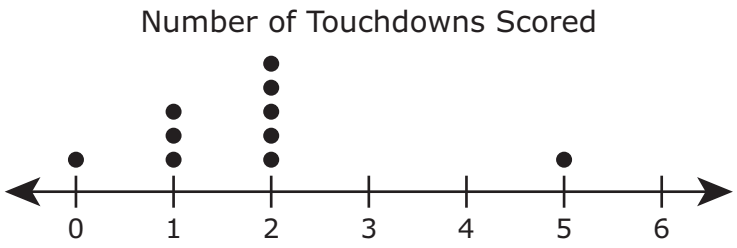
G $\frac{5}{16}$

H $\frac{8}{25}$

J $\frac{4}{125}$

GO ON

37 The dot plot shows the number of touchdowns a football team scored in 10 games last season.



Which statement best describes the data shown in the dot plot?

A The peak of the data is at 5.

B The data are clustered from 0 to 2.

C The data distribution has no gaps.

D The data distribution is symmetrical.

---

38 A warehouse floor has a perimeter of 6,615 feet. What is the perimeter of the floor in yards?

F 2,205 yd

G 19,845 yd

H 78,380 yd

J 735 yd

BE SURE YOU HAVE RECORDED ALL OF YOUR ANSWERS ON THE ANSWER DOCUMENT.

STOP

Item Number	Reporting Category	Readiness or Supporting	Content Student Expectation	Correct Answer
1	1	Readiness	6.2(D)	C
2	3	Readiness	6.11(A)	G
3	1	Supporting	6.4(C)	A
4	4	Readiness	6.12(D)	H
5	2	Readiness	6.10(A)	B
6	2	Readiness	6.3(E)	J
7	3	Readiness	6.8(D)	B
8	2	Supporting	6.9(A)	F
9	1	Readiness	6.7(A)	D
10	3	Supporting	6.8(A)	55
11	2	Readiness	6.5(B)	D
12	4	Supporting	6.14(B)	H
13	2	Readiness	6.6(C)	D
14	4	Readiness	6.13(A)	F
15	2	Supporting	6.9(C)	B
16	1	Readiness	6.7(D)	H
17	2	Readiness	6.4(B)	A
18	1	Supporting	6.2(C)	G
19	2	Supporting	6.3(B)	C
20	1	Readiness	6.2(D)	J
21	1	Readiness	6.7(A)	5
22	3	Supporting	6.8(C)	J
23	4	Supporting	6.14(H)	D
24	2	Supporting	6.5(A)	F
25	2	Readiness	6.3(D)	D
26	3	Readiness	6.8(D)	G
27	2	Readiness	6.6(C)	A
28	4	Readiness	6.13(A)	J
29	2	Readiness	6.4(B)	320
30	1	Readiness	6.7(D)	G
31	2	Readiness	6.10(A)	C
32	2	Readiness	6.5(B)	G
33	4	Readiness	6.12(C)	444
34	1	Supporting	6.2(E)	F
35	2	Supporting	6.10(B)	D
36	1	Readiness	6.4(G)	H
37	4	Supporting	6.12(B)	B
38	3	Readiness	6.4(H)	F

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 ≠ 30%, Lunch; 4/17 ≠ 10%, and Supper; 10/17 ≠ 60%, do not match the percentage bar graph shown.	G is incorrect because the values for Breakfast; 4/20 ≠ 30%, Lunch; 4/20 ≠ 10%, and Supper; 12/20 ≠ 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 ≠ 30%, Lunch; 3/7 ≠ 10%, and Supper; 4/7 ≠ 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 ≥ 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 ≥ 18, not 4h ≤ 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 ≥ 18, not h + 4 ≥ 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 ≥ 18, not h + 4 ≤ 18.
9	A is incorrect because 36 ÷ 3 • 4 = 48, not 36 ÷ 12 = 3.	B is incorrect because (3 • 3 • 4) ÷ 4 • 3 = 27, not 36 ÷ 12 = 3.	B is incorrect because 5 • 6 + 2 • 3 ÷ 3 • 2 • 2 = 38, not 36 ÷ 12 = 3.	D is correct because (3 • 3 • 2 • 2) ÷ (3 • 2 • 2) = 3 which is equivalent to 36 ÷ 12 = 3.
10	F; 55° is correct because 180° - (75° + 50°) = 55°.	G; Students may have added 50° + 75° 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 ÷ 0.45 = 320.

2017 STAAR Grade 6 Math Rationales

Item #	Response A/F	Response B/G	Response C/H	Response D/J
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 $2 \cdot 3^2 = 18$.		

2017 STAAR Grade 6 Math Rationales

Item #	Response A/F	Response B/G	Response C/H	Response D/J
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 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 ÷ (-3) = 0, not -22.	B is incorrect because -3 + (-2) - (-8) - 1 = 2, not -22.	C is incorrect because -6 • 2 - (-15) = 3, not -22.	D is correct because -5 • 2 - 12 = -22.
26	F is incorrect because the length is about 4 and the width is about 2 3/4. The formula for volume of a rectangular prism is V = Bh, so V = (4)(2 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 3/4. The formula for volume of a rectangular prism is V = Bh, so V = (4)(2 3/4)(2) which is closest to 22.	H is incorrect because the length is about 4 and the width is about 2 3/4. The formula for volume of a rectangular prism is V = Bh, so V = (4)(2 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 3/4. The formula for volume of a rectangular prism is V = Bh, so V = (4)(2 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 ÷ (3 + x) is not equivalent to (3 + x) ÷ 30.	G is correct because 30 ÷ (3 + x) = 30 ÷ (x + 3).	H is incorrect because 30 ÷ (3 + x) is not equivalent to (3 ÷ 30) + x.	J is incorrect because 30 ÷ (3 + x) is not equivalent to 30 ÷ 3 + 30 ÷ x.
31	A is incorrect because the formula for the area of a rectangle is A = bh, so 4b ≤ 48, divide both sides by 4 to get b ≤ 12, not b ≤ 44.	B is incorrect because the formula for the area of a rectangle is A = bh, so 4b ≤ 48, divide both sides by 4 to get b ≤ 12, b ≥ 52.	C is correct because the formula for the area of a rectangle is A = bh, so 4b ≤ 48, divide both sides by 4 to get b ≤ 12.	D is incorrect because the formula for the area of a rectangle is A = bh, so 4b ≤ 48, divide both sides by 4 to get b ≤ 12, not b ≥ 192.

2017 STAAR Grade 6 Math Rationales

Item #	Response A/F	Response B/G	Response C/H	Response D/J
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 ÷ 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 ÷ 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.