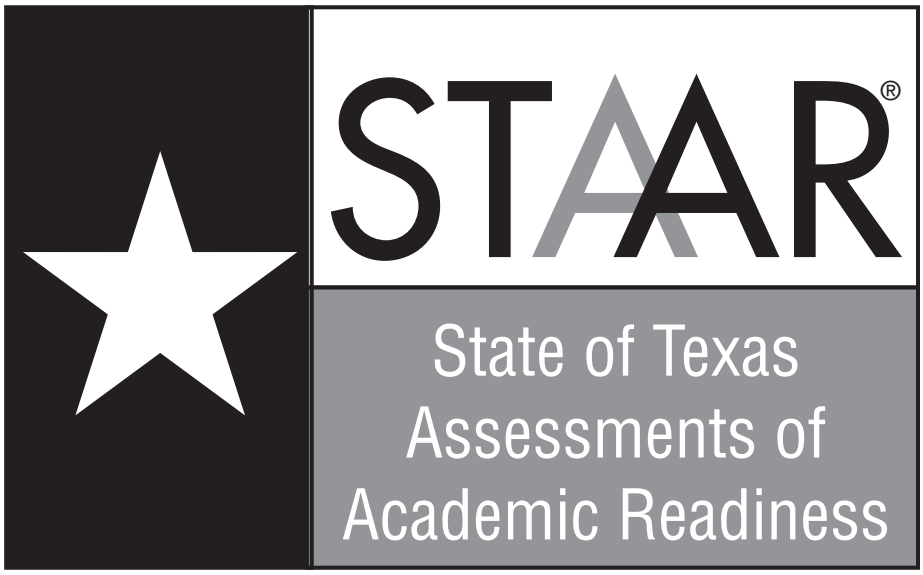

GRADE 6
Mathematics

Administered May 2021

RELEASED

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STAAR GRADE 6 MATHEMATICS REFERENCE MATERIALS

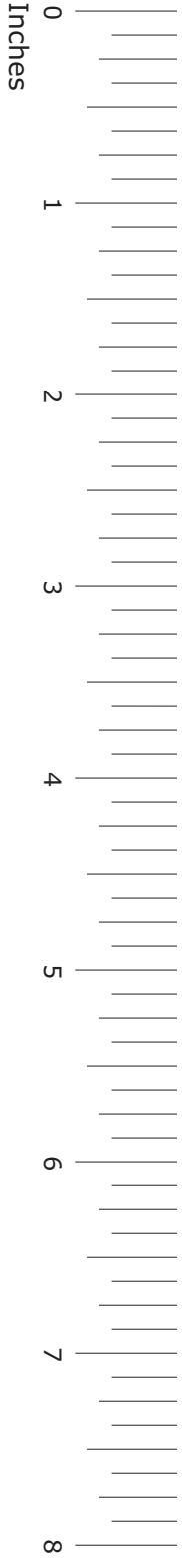
STAAR® State of Texas Assessments of Academic Readiness

AREA

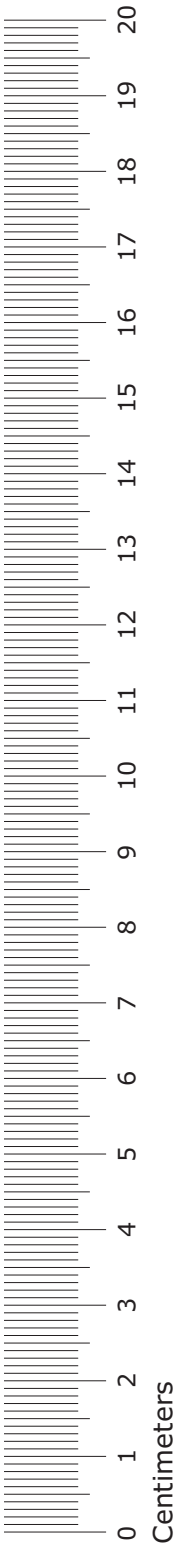
Triangle	$A = \frac{1}{2}bh$
Rectangle or parallelogram	$A = bh$
Trapezoid	$A = \frac{1}{2}(b_1 + b_2)h$

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)

MATHEMATICS

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 A group of 4 friends paid a total of $50.24 for tickets to a museum. Each friend paid the same amount for a ticket.

How much did each friend pay for a ticket to the museum?

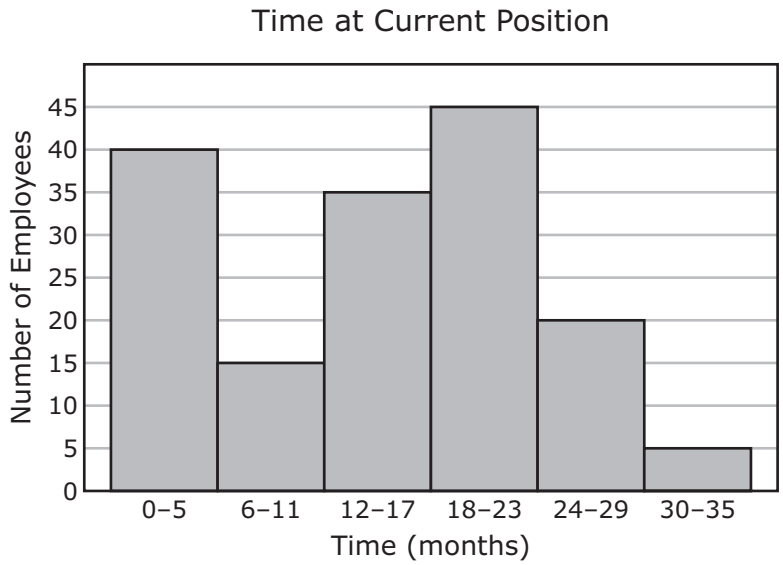
A $200.96

B $10.01

C $12.01

D $12.56

2 There are 160 employees who work for a company. The histogram summarizes the amount of time each employee has been in his or her current position at the company.



Based on the histogram, which statement must be true?

F There are 5 employees who have been at their current position for 30–35 months.

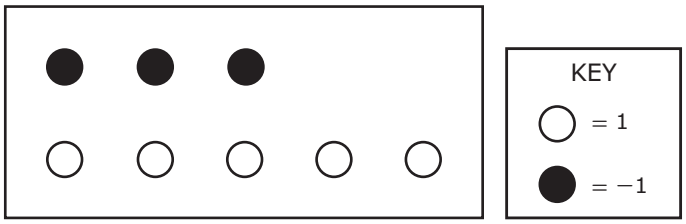
G There are 6–11 employees who have been at their current position for 15 months.

H Half of the employees have been at their current position 18 or more months.

J Half of the employees have been at their current position 11 or fewer months.

---

3 The circles in the model represent positive and negative units.



Which equation is true based on the model?

A $(-3) + 5 = -2$

B $(-3) + 5 = 2$

C $-3 + (-5) = -2$

D $3 + (-5) = 2$

4 Which list shows the numbers in order from greatest to least value?

F $-\frac{19}{2}$ $-3\frac{1}{4}$ -1.2 $\frac{38}{6}$ 7

G 7 $\frac{38}{6}$ $-\frac{19}{2}$ $-3\frac{1}{4}$ -1.2

H $-\frac{19}{2}$ 7 $\frac{38}{6}$ $-3\frac{1}{4}$ -1.2

J 7 $\frac{38}{6}$ -1.2 $-3\frac{1}{4}$ $-\frac{19}{2}$

---

5 Mauricio saves the same amount from his paycheck each week. The table shows the total amount of money saved based on the number of weeks.

Mauricio's Savings

Number of Weeks	1	2	3	4	5
Total Saved (dollars)	25	50	75	100	125

Which list shows the dependent quantities from the table?

A 26, 52, 78, 104, 130

B 25, 50, 75, 100, 125

C 1, 2, 3, 4, 5

D None of these

6 The table shows the low temperature in degrees Fahrenheit for a city each day for 12 days.

Low Temperatures

Temperature (°F)
29°
30°
35°
40°
42°
59°
60°
59°
49°
43°
38°
32°

What is the range of the temperatures in the table?

F 41°

G 43°

H 31°

J 59°

---

7 What is the value of the expression shown?

$$4(-2) + (-10) + 3(-8)$$

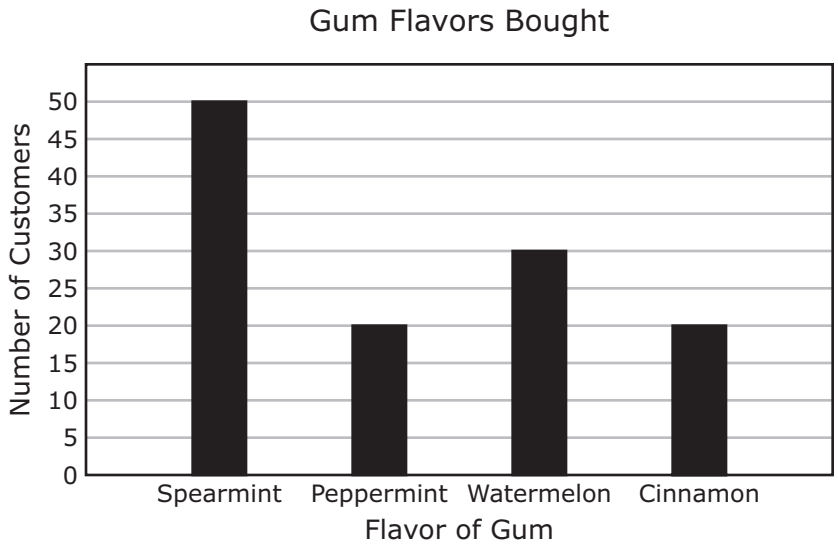
A −22

B −13

C 7

D −42

8 The bar graph shows the flavors of gum bought yesterday by the customers at a store. Each customer bought only 1 flavor of gum.



Which statement is NOT supported by the data displayed in the bar graph?

F The same number of customers bought peppermint as the number of customers who bought cinnamon.

G The mode flavor was watermelon.

H There were 120 customers who bought gum yesterday.

J There were 2.5 times as many customers who bought spearmint as customers who bought peppermint.

---

9 Which expression is equivalent to $53p + (16p + 7p)$?

A $(16p \cdot 7p) + 53p$

B $(53p \cdot 16p) \cdot 7p$

C $(16p + 7p) \cdot 53p$

D $(53p + 16p) + 7p$

10 A portion of Taquan's check register is shown. Before Taquan made his utility payment on March 24, the balance of his account was $1,094.80.

Taquan's Check Register

Date	Description	Deposit (dollars)	Withdrawal (dollars)	Balance (dollars)
				1,094.80
3/24	Utility Payment		193.66	
3/26	Gift	50.00		
3/28	Rent		650.00	
3/29	Paycheck	842.75		

Based on the information in the check register, what was the balance of Taquan's checking account in dollars and cents after the transaction on March 29?

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

---

11 Which list of angle measures could be the angle measures of a triangle?

A 20°, 45°, 120°

B 100°, 130°, 130°

C 35°, 60°, 85°

D 25°, 55°, 110°

12 There is a 1 in 8 chance of a player winning a game. Which value is equivalent to the chance of the player winning a game?

F $\frac{100}{125}$

G $\frac{125}{10}$

H 1.25

J 0.125

---

13 Dennis made an extra $245.00 for selling furniture. The extra $245.00 was 7% of the total value of the furniture he sold.

What was the total value of the furniture Dennis sold?

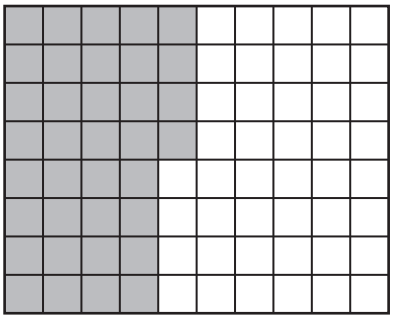
A $3,500.00

B $171.50

C $350.00

D $1,715.00

14 The rectangular model is made up of squares. Each square is of equal size.



What percentage of the model is shaded?

F 36%

G 50%

H 45%

J 40%

15 The table shows the ratio of people who ate a certain type of lunch to the total number of people who ate lunch.

Lunch

Type of Lunch	Ratio to the Total
Turkey sandwich	$\frac{1}{3}$
Vegetarian sandwich	$\frac{1}{6}$
Chicken sandwich	$\frac{4}{15}$
Salad	$\frac{7}{30}$

A total of 840 people ate lunch. Which statement is true?

A Half as many people ate a turkey sandwich as ate a vegetarian sandwich.

B One-fourth as many people ate a vegetarian sandwich as ate a salad.

C There were 56 more people who ate a turkey sandwich than ate a chicken sandwich.

D There were 28 more people who ate a salad than ate a chicken sandwich.

---

16 What is the value of the expression shown?

$$6 + (-4)^3$$

F 8

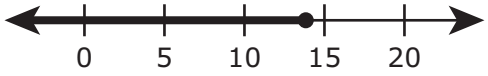
G 6

H −70

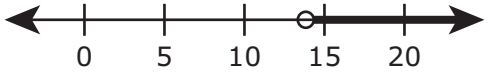
J −58

17 Alma reads 2 books each week. Which number line best represents the number of weeks it will take her to read at least 28 books?

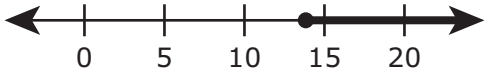
A



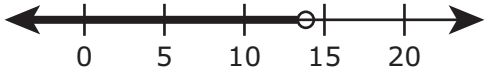
B



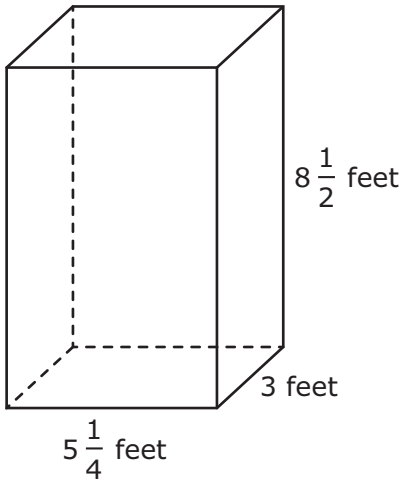
C



D



18 The dimensions of the rectangular prism are given in feet.



What is the volume of the rectangular prism in cubic feet?

F $120\frac{1}{8}$ ft^3

G $133\frac{7}{8}$ ft^3

H $16\frac{3}{4}$ ft^3

J $24\frac{1}{4}$ ft^3

19 At a bookstore the total cost of 6 books is $45.00. Each book costs the same amount.

Which table shows the relationship between the number of books bought and the total cost in dollars?

A

Cost of Books

Number of Books Bought	1	2	3	4
Cost (dollars)	7.50	15.00	22.50	30.00

B

Cost of Books

Number of Books Bought	8.5	9.5	10.5	11.5
Cost (dollars)	1.00	2.00	3.00	4.00

C

Cost of Books

Number of Books Bought	7.5	15	22.5	30
Cost (dollars)	1.00	2.00	3.00	4.00

D

Cost of Books

Number of Books Bought	1	2	3	4
Cost (dollars)	8.50	9.50	10.50	11.50

20 A grocery store orders 4 large containers of milk for every 7 small containers of milk. Which ratio could represent the number of large containers of milk to small containers of milk in an order from the grocery store?

F 18:21

G 14:8

H 16:49

J None of these

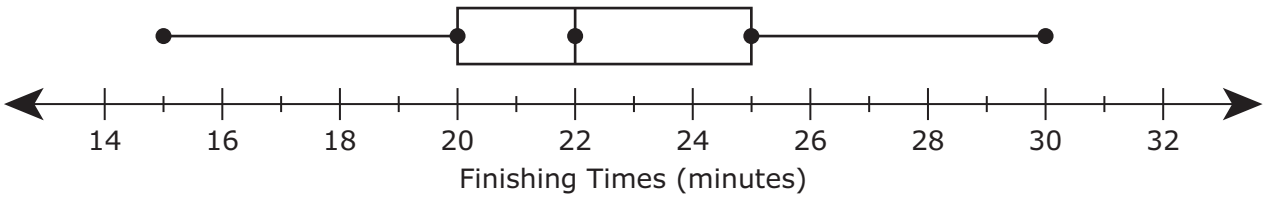
---

21 A certain type of brass contains 65% copper. How many pounds of copper are contained in 120 pounds of the brass?

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

---

22 The box plot summarizes the finishing times for the runners in a race.



Which statement is best supported by the data in the box plot?

F Approximately 50% of the finishing times were less than 25 minutes.

G Approximately $\frac{1}{4}$ of the finishing times were greater than 28 minutes.

H Approximately 25% of the finishing times were in the interval 20–22 minutes.

J Approximately $\frac{3}{4}$ of the finishing times were in the interval 15–30 minutes.

23 The length of the base of a parallelogram is 14 centimeters, and the corresponding height is h centimeters. Which formula can be used to find A, the area of the parallelogram in square centimeters?

A $A = 14 + h$

B $A = 14h$

C $A = \frac{1}{2}(14h)$

D $A = \frac{1}{2}(14 + h)$

---

24 Which value represents a percentage between 11% and 17%?

F 0.159

G 0.013

H $\frac{11}{1{,}000}$

J $\frac{6}{100}$

25 Which equation is NOT true?

A $-4 + (-3) = -7$

B $-8(2) = -16$

C $3 - (-2) = 5$

D $-12 \div (-3) = -4$

---

26 Ms. Versini applied for a car loan from a bank. Which statement best describes the importance of Ms. Versini's credit report to the bank?

F The report shows the likelihood that Ms. Versini will pay back the entire loan on time.

G The report shows the highest level of education that Ms. Versini has reached.

H The bank gives higher interest rates to people with higher credit scores.

J The bank gives partial loans to people with strong credit.

---

27 The length of a marathon race is 26 miles 385 yards. What is the total length of the marathon race in yards?

A 2,171 yd

B 46,145 yd

C 137,665 yd

D 5,691 yd

28 The table shows the amount of sugar Felisha mixes with each amount of water she puts in her hummingbird feeder.

Hummingbird Feeder

Amount of Sugar (cups)	Amount of Water (cups)
$\frac{1}{8}$	$\frac{1}{2}$
$\frac{1}{2}$	2
$\frac{3}{4}$	3
$\frac{5}{6}$	$3\frac{1}{3}$

Based on the information in the table, how many cups of sugar should Felisha mix with 6 cups of water?

F $1\frac{1}{2}$ c

G $5\frac{3}{4}$ c

H $4\frac{1}{2}$ c

J $\frac{3}{8}$ c

---

29 Two expressions are shown. The second expression is not complete.

Expression I: $200r - (-110)$

Expression II: $\square + 200r$

What number belongs in the box so that Expression I is equivalent to Expression II?

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

30 The table shows the relationship between b, the number of slices of bread, and c, the total number of calories in the bread.

Calories in Bread

Number of Slices, b	Total Calories, c
2	140
4	280
6	420
8	560

Which equation represents the relationship between b and c?

F $c = 70b$

G $c = b + 70$

H $c = 140b$

J $c = b + 140$

---

31 A baseball traveled 330 feet in 5 seconds. Which rate is equivalent to the rate at which the baseball traveled?

A 55 feet per second

B 66 feet per second

C 55 seconds per foot

D 66 seconds per foot

32 The length of a rectangle is 7 inches, and the area of the rectangle is 199.5 square inches. What is the width of the rectangle in inches?

F 28.5 in.

G 192.5 in.

H 1,396.5 in.

J 206.5 in.

---

33 Jaida worked $21\frac{1}{2}$ hours last week. She earned $11.60 per hour of work.

How much money did Jaida earn last week?

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

---

34 In a neighborhood $\frac{12}{40}$ of the lots have three or more trees. Which percentage is equivalent to the portion of lots in the neighborhood with three or more trees?

F 12%

G 35%

H 24%

J 30%

35 The perimeter of a triangle is 104 units. The combined length of two of the sides of the triangle is 64 units.

What is the length of the third side of the triangle in units?

A 168 units

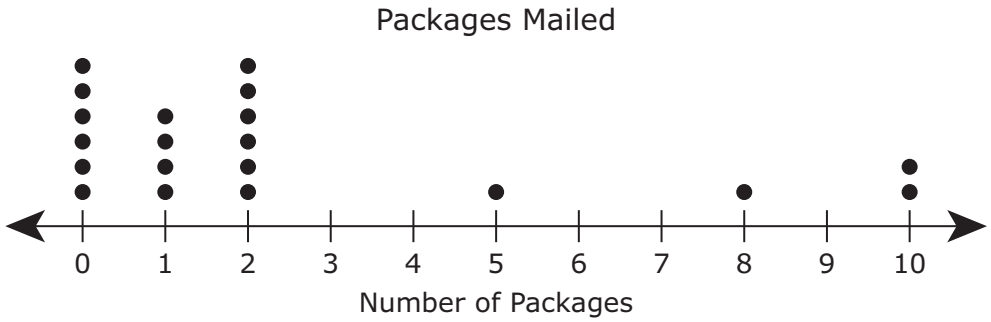
B 6,656 units

C 40 units

D 1.625 units

---

36 The dot plot shows the number of packages mailed by the last 20 customers at a post office.



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

F The data distribution has gaps.

G The data distribution is symmetrical.

H The data are clustered at 5.

J The peak of the data is at 10.

37 Point Q is located on the coordinate grid at $(-9.73, -3.32)$. In which quadrant is point Q located?

A Quadrant II

B Quadrant IV

C Quadrant III

D Quadrant I

---

38 In a recipe 3 eggs are used to make 45 cookies. Which table shows the relationship between the number of eggs used and the number of cookies made?

F

Cookies

Number of Eggs	Number of Cookies
6	270
9	405
12	540
15	675

H

Cookies

Number of Eggs	Number of Cookies
6	15
9	15
12	15
15	15

G

Cookies

Number of Eggs	Number of Cookies
6	90
9	135
12	180
15	225

J

Cookies

Number of Eggs	Number of Cookies
90	6
135	9
180	12
225	15

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

STOP

STAAR
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May 2021