2016 TEXAS STAAR TEST – GRADE 6 - MATH

Total Possible Score: 52
Needed Correct to Pass: For 2016 - 19 For 2017 - 21
Advanced Performance: 42

Time Limit: 4 Hours

This file contains the State of Texas Assessments of Academic Readiness (STAAR) administered in Spring, 2016, along with the answer key, learning objectives, and, for writing tests, the scoring guide. This document is available to the public under Texas state law. This file was created from information released by the Texas Education Agency, which is the state agency that develops and administers the tests. All of this information appears on the Texas Education Agency web site, but has been compiled here into one package for each grade and subject, rather than having to download pieces from various web pages.

The number of correct answers required to "pass" this test is shown above. Because of where the "passing" score is set, it may be possible to pass the test without learning some important areas of study. Because of this, I believe that making the passing grade should not be considered "good enough." A student's goal should be to master each of the objectives covered by the test. The "Advanced Performance" score is a good goal for mastery of all the objectives.

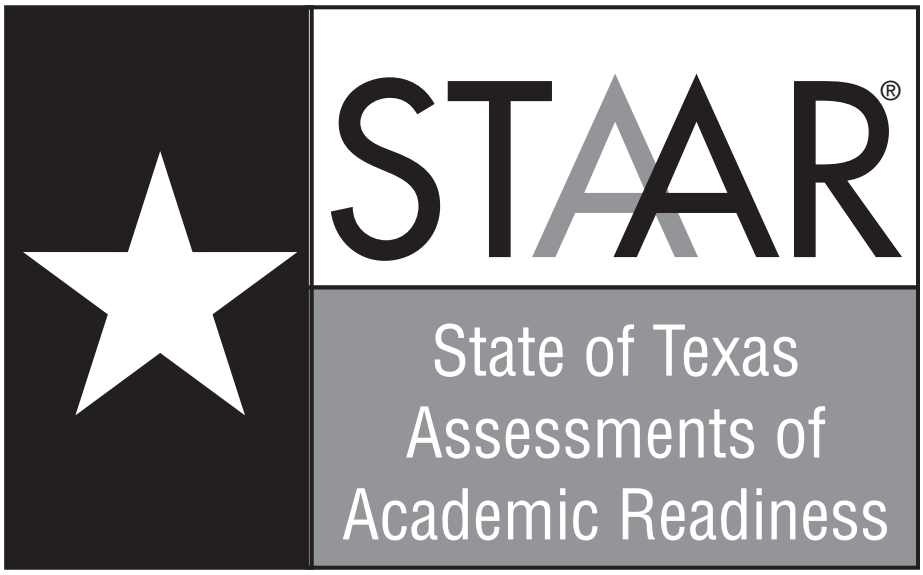
The test in this file may differ somewhat in appearance from the printed version, due to formatting limitations. Since STAAR questions are changed each year, some proposed questions for future tests are included in each year's exams in order to evaluate the questions. Questions being evaluated for future tests do not count toward a student's score. Those questions are also not included in the version of the test made available to the public until after they used as part of the official test.

Questions and comments about the tests should be directed to:
Texas Education Agency
Student Assessment Division
1701 N. Congress Ave, Room 3-122A
Austin, Texas 78701
phone: 512-463-9536 email: Student.Assessment@tea.state.tx.us

Hard copies of the released tests (including Braille) may be ordered online through Pearson Education at http://www.texasassessment.com/released-tests/ or by calling 855-333-7770.

When printing released questions for mathematics, make sure the Print Menu is set to print the pages at 100% to ensure that the art reflects the intended measurements.

For comments and questions about this file or the web site, you can e-mail me at scott@scotthochberg.com. Please direct any questions about the content of the test to the Texas Education Agency at the address above. To download additional tests, go to www.scotthochberg.com.



GRADE 6

Mathematics

Administered May 2016

RELEASED

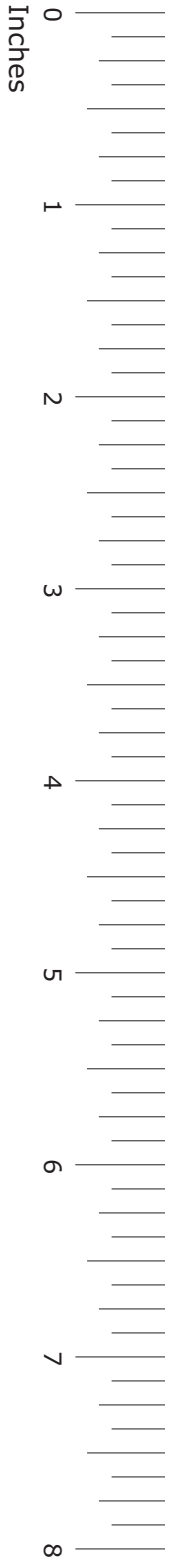
STAAR GRADE 6 MATHEMATICS REFERENCE MATERIALS

AREA

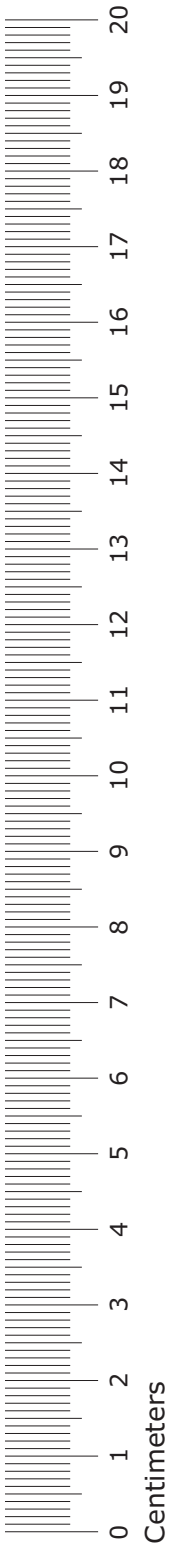
Triangle	$A = \frac{1}{2}bh$
Rectangle or parallelogram	$A = bh$
Trapezoid	$A = \frac{1}{2}(b_1 + b_2)h$

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 Frank had $65. He spent $2 per day for 7 days. Then he was given $9 to divide equally between himself and his 2 brothers. The following expression can be used to find the amount of money Frank had after that.

$$65 - 2 \cdot 7 + 9 \div 3$$

Based on this expression, what is the amount of money Frank had remaining?

A $150

B $54

C $20

D $444

---

2 A baby weighed 7.25 lb at birth. At the end of 8 months, the baby weighed $2\frac{1}{2}$ times its birth weight. How many pounds did the baby weigh at the end of 8 months?

F 14.5 lb

G 9.75 lb

H 18.125 lb

J 14.125 lb

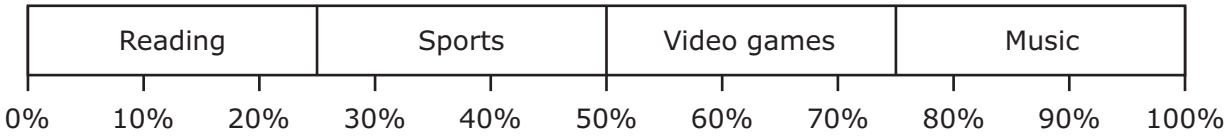
3 Hector surveyed all the sixth graders at his school about their favorite after-school activity. The table shows the results that were used to make a bar graph.

Favorite Activities

Activity	Number of Students
Reading	44
Sports	55
Video games	55
Music	66

Which percentage bar graph best represents the data?

A



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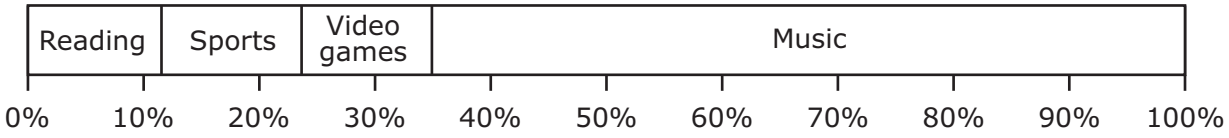

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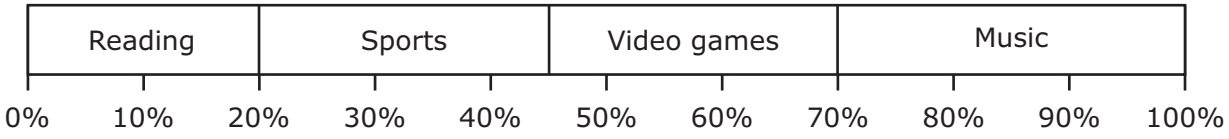
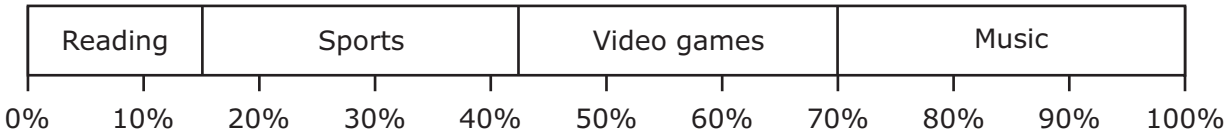
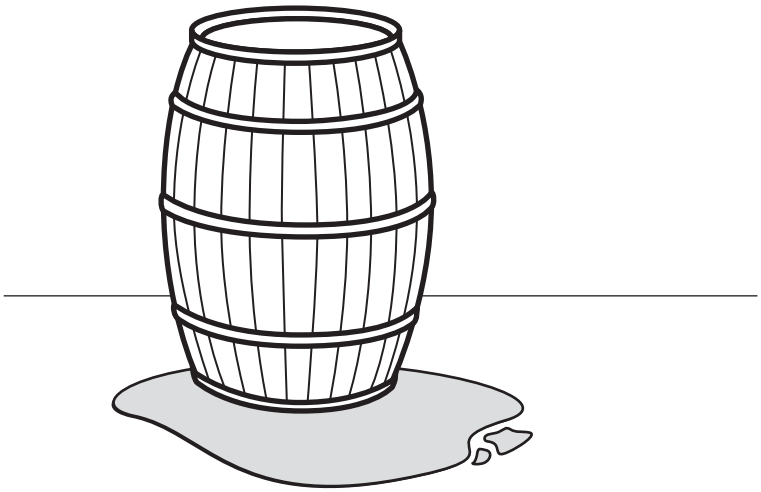


D



4 A barrel contained 60 gallons of water. Water leaked out of the barrel at a rate of 5 gallons every 3 days.



At this rate, how many days did it take for all 60 gallons of water to leak out of the barrel?

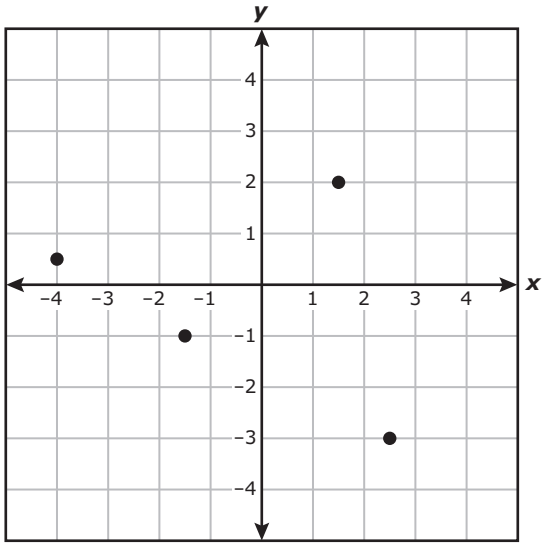
F 20 days

G 12 days

H 100 days

J 36 days

5 Four points are graphed on the coordinate grid.



Which ordered pair does **not** appear to be represented by one of these points?

A $(\frac{5}{2}, -3)$

B $(-1, -1\frac{1}{2})$

C $(\frac{3}{2}, 2)$

D $(-4, \frac{1}{2})$

6 A carpenter wants to cut a board that is $\frac{5}{6}$ ft long into pieces that are $\frac{5}{16}$ ft long. The carpenter will use the expression shown to calculate the number of pieces that can be cut from the board.

$$\frac{5}{6} \div \frac{5}{16}$$

Which expression can also be used to calculate the number of pieces that can be cut from the board?

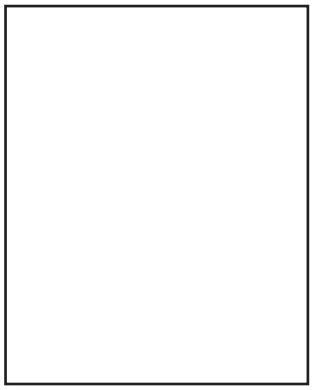
F $\frac{5}{6} \cdot \frac{16}{5}$

G $\frac{5}{6} \cdot \frac{5}{16}$

H $\frac{6}{5} \div \frac{5}{16}$

J $\frac{6}{5} \div \frac{16}{5}$

7 The rectangle below represents the base of a rectangular prism. Use the ruler provided to measure the dimensions of the rectangle to the nearest centimeter.



The height of the rectangular prism is 12 centimeters. What is the volume of the rectangular prism?

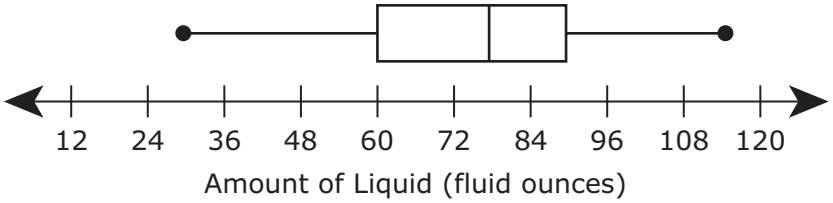
A 32 cm^3

B 20 cm^3

C 360 cm^3

D 240 cm^3

8 Students recorded the amount of liquid in fluid ounces each of them drank in one day. The box plot shows the summary of the results.



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

F Half the students drank from 78 to 114 fluid ounces.

G The greatest number of students drank from 30 to 78 fluid ounces.

H The data represent 78 student responses.

J The mean number of fluid ounces that the students drank is 78.

---

9 Which two expressions are equivalent?

A $4 + (3 \cdot y)$ and $(4 + 3) \cdot y$

B $(18 \div y) + 10$ and $10 + (y \div 18)$

C $12 - (y \cdot 2)$ and $12 - (2 \cdot y)$

D $(10 - 6) \div y$ and $10 - (6 \div y)$

10 Mr. Smith has a maximum of $50 to spend at a museum. A ticket to the museum costs $7. He can spend p dollars to buy other things at the museum. Which inequality can be used to find the possible values for p?

F $p - 7 > 50$

G $p - 7 < 50$

H $p + 7 \geq 50$

J $p + 7 \leq 50$

---

11 Mrs. Torres is mailing a package that weighs 12.5 pounds. The post office charges by the ounce to mail a package. How much does the package weigh in ounces?

A 187 ounces

B 200 ounces

C 192.5 ounces

D 100 ounces

12 A team of four players competed in a golf contest. The names and scores of the players on the team are shown in the table. The team's score is the sum of all the scores in the table.

Golf Scores

Player	Score
Brett	−2
Elliott	+3
Lin	−4
Tyrone	−1

What is the team's score?

F 10

G −10

H −4

J Not here

---

13 A farmer watered $\frac{3}{8}$ of a field. What percentage is equivalent to the fraction of the field the farmer watered?

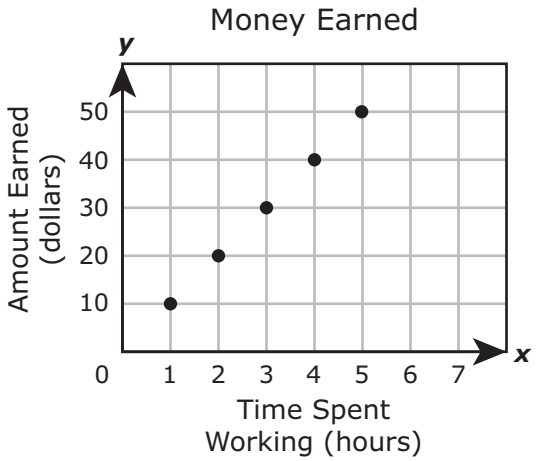
A 24.00%

B 37.50%

C 8.30%

D 3.75%

14 The graph shows the amount of money earned by an employee based on the time he spent working.



Which list shows the dependent quantities in the graph?

F 10, 20, 30, 40, 50

G 1, 2, 3, 4, 5

H 11, 22, 33, 44, 55

J 101, 202, 303, 404, 505

15 The table shows the amount of time four students practiced the trumpet one day.

Trumpet Practice Times

Name	Time (hours)
Cole	$1\frac{2}{3}$
Gus	$1\frac{1}{2}$
Ryan	$1\frac{1}{4}$
Jacob	$1\frac{7}{12}$

Which list shows the names of the students in order from the least amount of practice time to the greatest amount of practice time?

A Ryan, Jacob, Cole, Gus

B Cole, Jacob, Gus, Ryan

C Ryan, Gus, Jacob, Cole

D Gus, Ryan, Cole, Jacob

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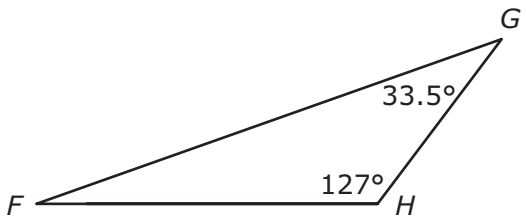
16 In triangle *FGH* shown below, what is the measure of $\angle F$ in degrees?



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

17 The list shows the number of licenses issued every year to lobster boats in Massachusetts for a five-year period.

551, 554, 529, 534, 530

What is the range of these data?

A 534

B 540

C 21

D 25

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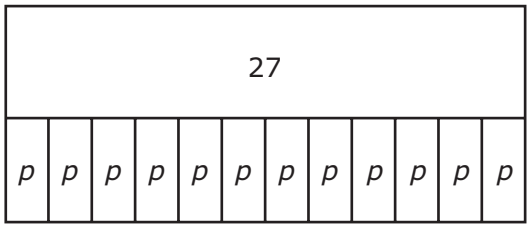
18 Holly bought a magazine subscription for a year. She paid $27. Holly wanted to find the price, p, of the subscription each month. She created the model shown to help find this price.



What was the price of the subscription each month?

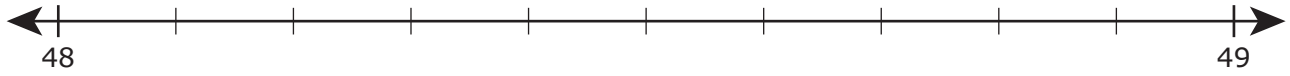
F $39.00

G $2.25

H $324.00

J $22.50

19 Alyssa will correctly label the numbers 48.4, $48\frac{1}{2}$, 48.09, and $48\frac{3}{5}$ on the number line below.



Which number will be located closest to 49?

A 48.4

B $48\frac{1}{2}$

C 48.09

D $48\frac{3}{5}$

---

20 Which statement describes the relationship between x and y in these two equations?

$$y = 2x$$
$$y = x + 2$$

F In $y = 2x$ the value of y is 2 more than the value of x, and in $y = x + 2$ the value of y is twice the value of x.

G In $y = 2x$ and in $y = x + 2$, the value of y is 2 more than the value of x.

H In $y = 2x$ and in $y = x + 2$, the value of y is twice the value of x.

J In $y = 2x$ the value of y is twice the value of x, and in $y = x + 2$ the value of y is 2 more than the value of x.

21 The table shows the monthly fees for the checking accounts at two banks.

Checking Account Fees at Two Banks

Bank	Monthly Fee
Y	1% of checking account balance
Z	$5

Which statement is best supported by the information in the table?

A The fee at Bank Y will always be less than the fee at Bank Z.

B The fee at Bank Y will always be more than the fee at Bank Z.

C The fee at Bank Y will be more than the fee at Bank Z only when a customer's balance is more than $500.

D The fee at Bank Y will be more than the fee at Bank Z only when the checking account balance is less than $500.

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22 As part of a survey, 300 girls were asked to name their favorite sport. The results showed that 12 of the girls named bowling as their favorite sport. What percentage of the girls in the survey named bowling as their favorite sport?

F 4%

G 12%

H 25%

J 0.04%

23 A county with an area of 425 square miles has a population of 9,350 residents. Which rate best represents the relationship between the population of the county and the area of the county?

A 22 square miles per resident

B 9,350 residents per square mile

C 22 residents per square mile

D 425 square miles per resident

---

24 The table shows the relationship between d, the amount of money Alice has at the beginning of each day, and w, the amount of money she has after riding the bus to work.

Alice's Money

Money at the Beginning of the Day, d	Money After Riding the Bus to Work, w
\$15.75	\$14.50
\$9.50	\$8.25
\$5.25	\$4.00
\$30.00	\$28.75

Which equation represents the relationship in the table?

F $w = d + 1.25$

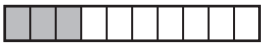
G $w = 14.50d + 1.25$

H $w = 15.75d - 1.25$

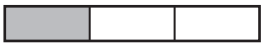
J $w = d - 1.25$

25 This shaded model represents 100%.

Which model represents $33\frac{1}{3}$%?

A 

B 

C 

D 

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26 The table below shows the relationship between the perimeter and area of four squares.

Squares

Area, A (square units)	Perimeter, P (units)
1	4
4	8
9	12
16	16

Which equation can be used to find A, the area of a square that has a perimeter of P units?

F $A = (P \div 4) \times (P \div 4)$

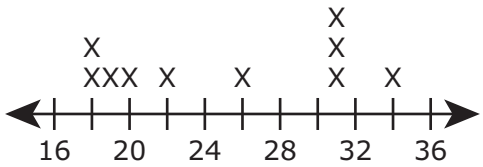
G $A = (P - 4)$

H $A = (P + 4) \times (P + 4)$

J $A = P$

27 The line plot shows the number of pounds of fish eaten by each dolphin at a zoo.

Fish Eaten by Dolphins
(pounds)



Which stem and leaf plot best represents the data in the line plot?

A

Fish Eaten by Dolphins
(pounds)

Stem	Leaf
1	8 8
2	0 0 2 6
3	1 1 1 3

KEY
2|0 = 20 pounds

C

Fish Eaten by Dolphins
(pounds)

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

KEY
2|0 = 20 pounds

B

Fish Eaten by Dolphins
(pounds)

Stem	Leaf
1	7 7 8
2	0 1 5
3	0 0 0 3

KEY
2|0 = 20 pounds

D

Fish Eaten by Dolphins
(pounds)

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

KEY
2|0 = 20 pounds

GO ON

28 A meteorologist at a television station reported that a town received 0.95 in. of rain. Which fraction is equivalent to this amount of rain in inches?

F $\frac{19}{50}$ in.

G $\frac{19}{20}$ in.

H $\frac{95}{10}$ in.

J $\frac{9}{5}$ in.

---

29 The table shows the average annual salary for four jobs.

Average Annual Salaries

Job	Average Annual Salary (dollars)
Copywriter	55,869
Librarian	54,407
Elevator technician	71,900
Aircraft mechanic	52,975

Based on this information, how much more will an elevator technician make than a librarian over 10 years?

A $174,930

B $126,307

C $17,493

D $1,263,070

30 A teacher wrote this expression on the board.

$$(-6)(2) + (-8 \div 4)$$

What is the value of this expression?

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

---

31 Which equation has a solution of $\frac{2}{3}$ for n?

A $n - 1 = \frac{1}{3}$

B $16n = 24$

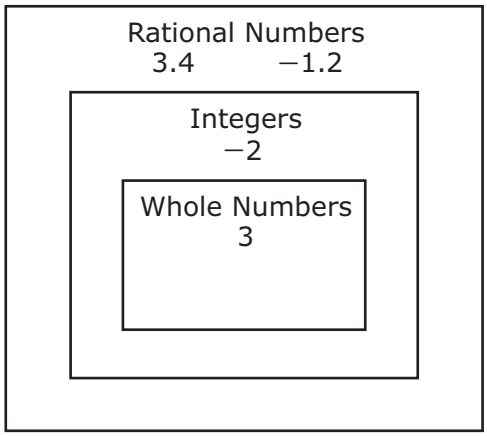
C $15n = 10$

D $1\frac{1}{3} + n = 3$

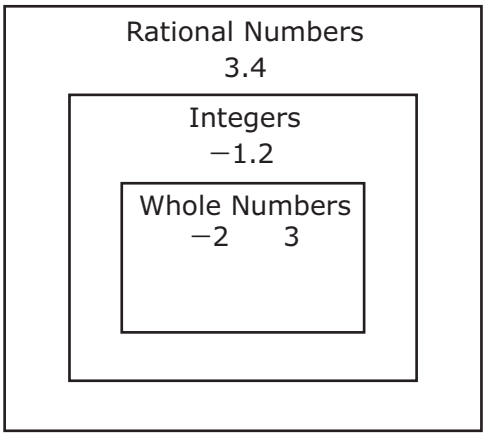
32 Which graphic organizer correctly groups the following numbers?

3.4 −2 3 −1.2

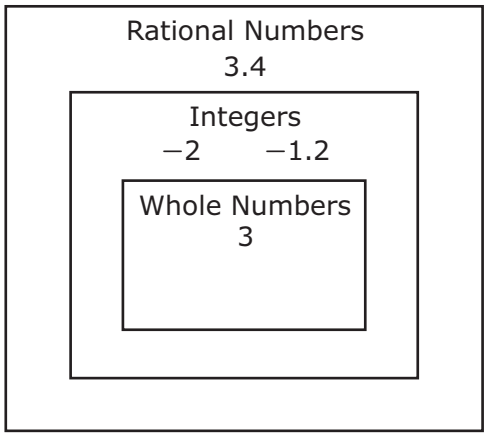
F



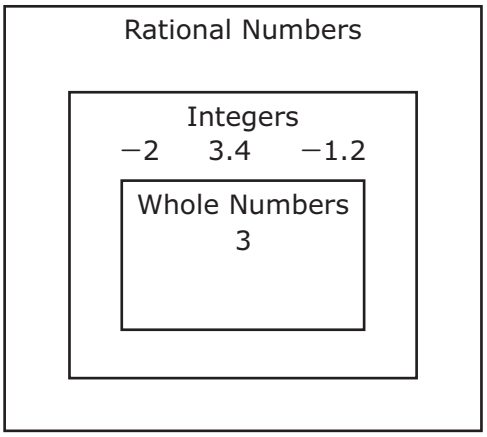
H



G



J



GO ON

33 Which situation **cannot** be represented by the equation $x + 10 = 45$?

A Marissa spent \$45 on a hat and a shirt. The hat cost \$10. What is x, the cost of the shirt in dollars?

B Nicholas rode his bike 45 miles last week. He rode 10 miles on Tuesday and the rest of the miles on Wednesday. What is x, the number of miles Nicholas rode his bike on Wednesday?

C Two players scored a total of 45 points in a game. One player scored 10 points. What is x, the number of points scored by the other player?

D There are 45 students in a group. There are also 10 adults in the group. What is x, the total number of students and adults in the group?

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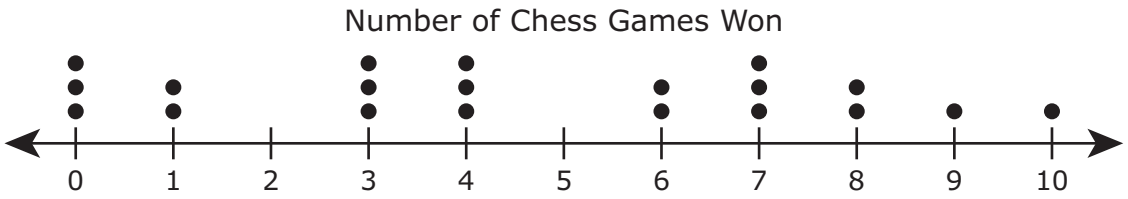
34 The dot plot shows the number of chess games won by each of the 20 students in a competition.



Which statement about the data is true?

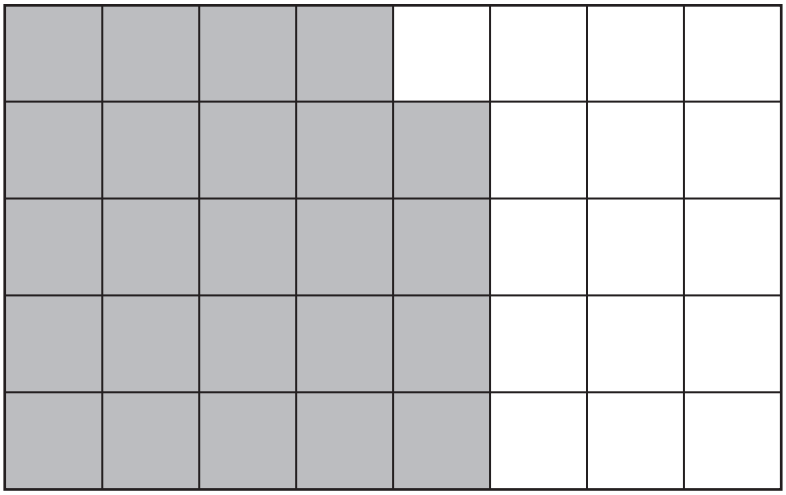
F The median is 4, and the interquartile range is 10.

G The median is 4, and the interquartile range is 5.

H The median is 5, and the interquartile range is 10.

J The median is 5, and the interquartile range is 5.

35 The shaded area on the grid represents the part of a rectangular wall that was painted. Each small square on the wall has the same dimensions.



What percentage of the wall was painted?

A 64%

B 24%

C 60%

D 16%

36 Before Nina bought groceries on April 22, she had a balance of $487.25 in her checking account. Nina wrote her transactions in her check register. She included all her transactions through the end of the day on April 23.

Nina's Check Register

Date	Description	Deposits (dollars)	Withdrawals (dollars)	Balance (dollars)
				487.25
4/22	Groceries		72.50	
4/23	Cash deposit	15.00		

Based on the transactions in Nina's check register, what is the balance in dollars and cents in her checking account at the end of the day on April 23?

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

---

37 Which table shows only values that represent the following relationship between q and r?

$$r = q + 10.1$$

A

q	*r*
5	50.5
7	70.7
9	90.9
11	111.1

C

q	*r*
5	10.6
7	10.8
9	11.0
11	11.2

B

q	*r*
5	15.1
7	17.1
9	19.1
11	21.1

D

q	*r*
5	15.1
7	15.3
9	15.5
11	15.7

38 A recipe for cookies requires $\frac{2}{3}$ cup of butter. Rama wants to make $\frac{3}{4}$ of the recipe. How many cups of butter should Rama use to make the cookies?

F $1\frac{5}{12}$ c

G $\frac{8}{9}$ c

H $\frac{1}{12}$ c

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

---

39 A robot's height is 1 meter 20 centimeters. How tall is the robot in millimeters?

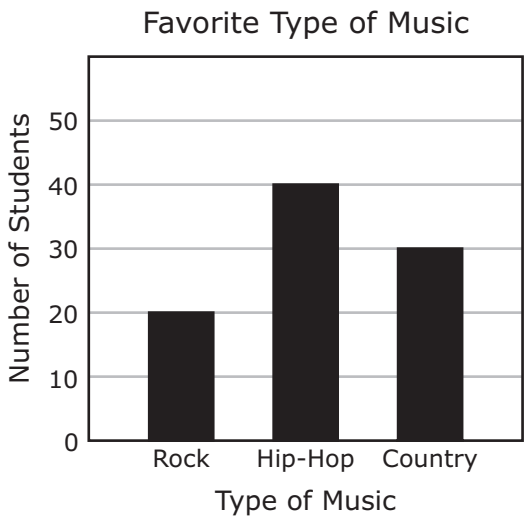
A 1,200 millimeters

B 1,020 millimeters

C 120 millimeters

D Not here

40 Aiden asked a group of students to choose their favorite type of music from the choices of rock, hip-hop, and country. The results of the survey are shown in the graph.



Based on the graph, how many students in a class of 360 students would be expected to choose hip-hop or rock as their favorite type of music?

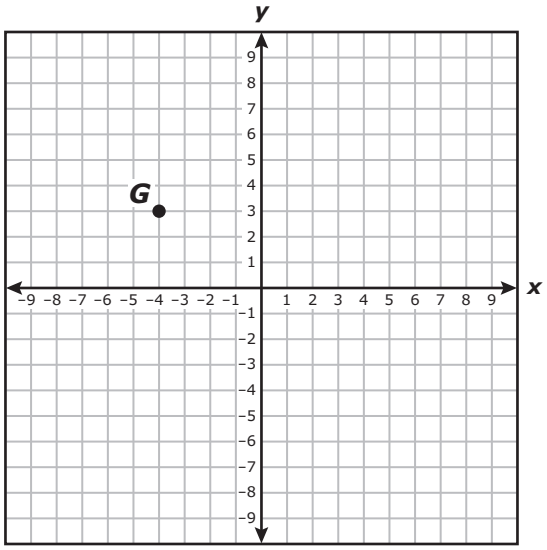
F 240

G 80

H 60

J 180

41 Benisha graphed point *G* on the coordinate grid. She will graph point *H* at a location 5 units away from point *G*.



Which ordered pair could represent the location of point *H*?

A (−4, 5)

B (−9, 8)

C (1, 3)

D (−4, −1)

---

42 A restaurant offered cooking classes on 24 of the 30 days in November. What decimal is equivalent to the fraction of days in November that classes were offered at the restaurant?

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

43 Shemar bought a bag of marbles. He took the marbles out of the bag one at a time. He recorded the color of each marble in this tally chart.

Marbles

Color	Number of Marbles
Black	𝍸 𝍸 𝍸
Yellow	𝍸 𝍸
Green	𝍸 𝍸 ll
Red	𝍸
White	𝍸 lll

In which table do the percentages represent the relative frequency of these marble colors?

A

Marbles

Color	Percentage of All Marbles
Black	15%
Yellow	10%
Green	12%
Red	5%
White	8%

B

Marbles

Color	Percentage of All Marbles
Black	15%
Yellow	25%
Green	37%
Red	42%
White	50%

C

Marbles

Color	Percentage of All Marbles
Black	10%
Yellow	16%
Green	20%
Red	24%
White	30%

D

Marbles

Color	Percentage of All Marbles
Black	30%
Yellow	20%
Green	24%
Red	10%
White	16%

44 The cost of downloading one song from a website is $0.99. Which equation can be used to find t, the cost in dollars of downloading n songs?

F $t = 0.99 + n$

G $n = 0.99 + t$

H $t = 0.99n$

J $n = 0.99t$

---

45 Students in Mrs. Guerro's class must complete at least 40 math problems for homework every week. The table shows the progress of four students on Wednesday.

Homework Progress

Student	Amount Completed
Katie	0.4
D'Angelo	$\frac{45}{40}$
Grace	100%
Jonah	$\frac{2}{3}$

Which list shows the amounts of homework completed in order from greatest to least?

A 0.4, $\frac{2}{3}$, $\frac{45}{40}$, 100%

B $\frac{45}{40}$, 100%, $\frac{2}{3}$, 0.4

C 0.4, $\frac{2}{3}$, 100%, $\frac{45}{40}$

D $\frac{2}{3}$, 0.4, $\frac{45}{40}$, 100%

46 What is the prime factorization of 110?

F $5^2 \cdot 11$

G $2^5 \cdot 11$

H $5 \cdot 22$

J $2 \cdot 5 \cdot 11$

---

47 In 2012 there were approximately 8,950 public libraries in the United States. A survey found that 76% of those libraries offered free access to electronic books. Based on this information, how many public libraries offered free access to electronic books in 2012?

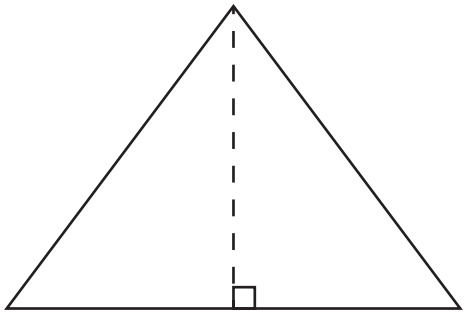
A 8,190

B 118

C 6,802

D 760

48 Ms. Chen will paint a triangular tile. A drawing of the tile is shown. Use the ruler provided to measure the dimensions of the tile to the nearest centimeter.



Which measurement is closest to the area of the tile in square centimeters?

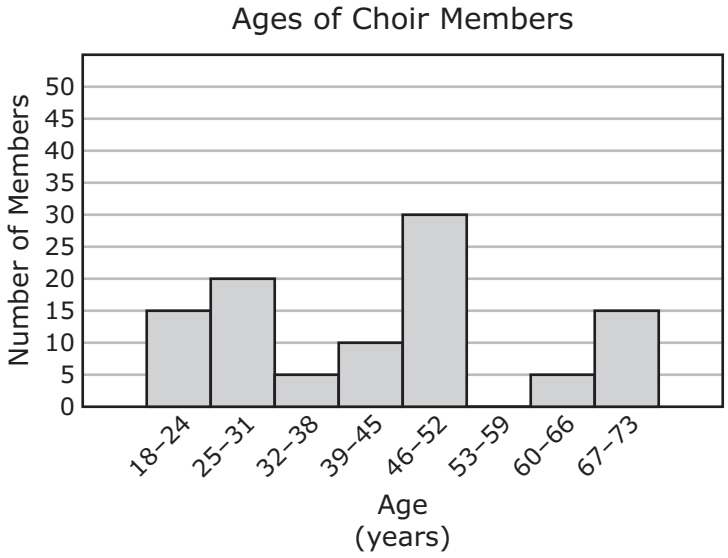
F 12 cm^2

G 24 cm^2

H 15 cm^2

J 30 cm^2

49 A choir director made a histogram showing the ages of the members of the choir.



Which statement about the data in the histogram must be true?

A More than half the members are from 46 to 73 years old.

B There are more men than women in the choir.

C The choir has a total of 100 members.

D Exactly 20 members are less than 32 years old.

---

50 A student needs to collect at least 10 flowers for a science project. The student has already collected 3 flowers. The inequality shown can be used to find n, the number of flowers the student still needs.

$$n + 3 \geq 10$$

Which inequality represents the solution set for this situation?

F $n \leq 13$

G $n \geq 13$

H $n \leq 7$

J $n \geq 7$

51 To make pink paint, Sylvia mixes 7 cups of white paint to every 3 cups of red paint. Which table shows possible values of w, the number of cups of white paint Sylvia uses, and r, the number of cups of red paint?

A

Pink Paint

White Paint, w (cups)	7	49	343	2,401
Red Paint, r (cups)	3	9	27	81

B

Pink Paint

White Paint, w (cups)	7	8	9	10
Red Paint, r (cups)	3	4	5	6

C

Pink Paint

White Paint, w (cups)	7	14	21	28
Red Paint, r (cups)	3	6	9	12

D

Pink Paint

White Paint, w (cups)	7	6	5	4
Red Paint, r (cups)	3	4	5	6

52 Which two expressions are equivalent?

F $9(6 + x)$
$9 \cdot 6 + 9 \cdot x$

G $x + (8 \cdot 9)$
$(x + 8) \cdot 9$

H $8 \cdot 6 \div x$
$8 \cdot x \div 6$

J $6 \cdot x + 3$
$6 \cdot (x + 3)$

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

STOP

STAAR
GRADE 6
Mathematics
May 2016

Item Number	Reporting Category	Readiness or Supporting	Content Student Expectation	Process Student Expectation	Correct Answer
1	1	Readiness	6.7(A)	6.1 (A),(B),(F)	B
2	2	Readiness	6.3(E)	6.1 (A),(B),(F)	H
3	4	Readiness	6.12(D)	6.1 (A),(B),(D),(F)	C
4	2	Readiness	6.4(B)	6.1 (A),(B),(F)	J
5	3	Readiness	6.11(A)	6.1 (B),(E),(F)	B
6	2	Supporting	6.3(A)	6.1 (A),(B),(F)	F
7	3	Readiness	6.8(D)	6.1 (B),(C),(E),(F)	D
8	4	Readiness	6.13(A)	6.1 (A),(B),(E),(G)	F
9	1	Readiness	6.7(D)	6.1 (B),(F)	C
10	2	Supporting	6.9(A)	6.1 (A),(B),(D),(F)	J
11	3	Readiness	6.4(H)	6.1 (A),(B),(C),(F)	B
12	2	Readiness	6.3(D)	6.1 (A),(B),(E),(F)	H
13	1	Readiness	6.4(G)	6.1 (A),(B),(F)	B
14	2	Supporting	6.6(A)	6.1 (A),(B),(E),(F)	F
15	1	Readiness	6.2(D)	6.1 (A),(B),(E),(F)	C
16	3	Supporting	6.8(A)	6.1 (B),(E),(F)	19.5
17	4	Readiness	6.12(C)	6.1 (A),(B),(F)	D
18	2	Readiness	6.10(A)	6.1 (A),(B),(E),(F)	G
19	1	Supporting	6.2(C)	6.1 (A),(B),(E),(F)	D
20	2	Supporting	6.4(A)	6.1 (B),(G)	J
21	4	Supporting	6.14(A)	6.1 (A),(B),(E),(G)	C
22	2	Readiness	6.5(B)	6.1 (A),(B),(F)	F
23	1	Supporting	6.4(D)	6.1 (A),(B),(G)	C
24	2	Supporting	6.6(B)	6.1 (A),(B),(D),(F)	J
25	1	Supporting	6.4(F)	6.1 (B),(D),(F)	C
26	3	Supporting	6.8(C)	6.1 (B),(C),(D),(F)	F
27	4	Supporting	6.12(A)	6.1 (A),(B),(D),(F)	C
28	1	Readiness	6.4(G)	6.1 (A),(B),(F)	G
29	4	Supporting	6.14(H)	6.1 (A),(B),(E),(F)	A
30	2	Readiness	6.3(D)	6.1 (A),(B),(F)	-14
31	2	Supporting	6.10(B)	6.1 (B),(F)	C
32	1	Supporting	6.2(A)	6.1 (B),(E),(F)	F
33	2	Supporting	6.9(C)	6.1 (A),(B),(D),(G)	D
34	4	Readiness	6.12(C)	6.1 (A),(B),(E),(G)	G
35	1	Supporting	6.4(E)	6.1 (A),(B),(D),(F)	C
36	4	Supporting	6.14(C)	6.1 (A),(B),(E),(F)	429.75
37	2	Readiness	6.6(C)	6.1 (B),(D),(F)	B
38	2	Readiness	6.3(E)	6.1 (A),(B),(F)	J
39	3	Readiness	6.4(H)	6.1 (A),(B),(C),(F)	A
40	2	Readiness	6.4(B)	6.1 (A),(B),(E),(F)	F
41	3	Readiness	6.11(A)	6.1 (A),(B),(E),(F)	C
42	1	Readiness	6.4(G)	6.1 (A),(B),(F)	0.8
43	4	Readiness	6.12(D)	6.1 (A),(B),(D),(F)	D
44	2	Readiness	6.6(C)	6.1 (A),(B),(D),(F)	H
45	1	Readiness	6.2(D)	6.1 (A),(B),(E),(F)	B
46	1	Readiness	6.7(A)	6.1 (B),(F)	J
47	2	Readiness	6.5(B)	6.1 (A),(B),(F)	C
48	3	Readiness	6.8(D)	6.1 (A),(B),(C),(E),(F)	F
49	4	Readiness	6.13(A)	6.1 (A),(B),(E),(G)	C
50	2	Readiness	6.10(A)	6.1 (A),(B),(F)	J
51	2	Supporting	6.5(A)	6.1 (A),(B),(D),(F)	C
52	1	Readiness	6.7(D)	6.1 (B),(F)	F

STAAR Grade 6 Mathematics Assessment

Mathematical Process Standards

These student expectations will not be listed under a separate reporting category. Instead, they will be incorporated into test questions across reporting categories since the application of mathematical process standards is part of each knowledge statement.

(6.1) **Mathematical process standards.** The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to

(A) apply mathematics to problems arising in everyday life, society, and the workplace;

(B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;

(C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems;

(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;

(E) create and use representations to organize, record, and communicate mathematical ideas;

(F) analyze mathematical relationships to connect and communicate mathematical ideas; and

(G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

Texas Education Agency
Student Assessment Division
January 2014

Reporting Category 1:
Numerical Representations and Relationships

The student will demonstrate an understanding of how to represent and manipulate numbers and expressions.

(6.2) **Number and operations.** The student applies mathematical process standards to represent and use rational numbers in a variety of forms. The student is expected to

(A) classify whole numbers, integers, and rational numbers using a visual representation such as a Venn diagram to describe relationships between sets of numbers; ***Supporting Standard***

(B) identify a number, its opposite, and its absolute value; ***Supporting Standard***

(C) locate, compare, and order integers and rational numbers using a number line; ***Supporting Standard***

(D) order a set of rational numbers arising from mathematical and real-world contexts; and ***Readiness Standard***

(E) extend representations for division to include fraction notation such as a/b represents the same number as $a \div b$ where $b \neq 0$. ***Supporting Standard***

(6.4) **Proportionality.** The student applies mathematical process standards to develop an understanding of proportional relationships in problem situations. The student is expected to

(C) give examples of ratios as multiplicative comparisons of two quantities describing the same attribute; ***Supporting Standard***

(D) give examples of rates as the comparison by division of two quantities having different attributes, including rates as quotients; ***Supporting Standard***

(E) represent ratios and percents with concrete models, fractions, and decimals; ***Supporting Standard***

(F) represent benchmark fractions and percents such as 1%, 10%, 25%, 33 1/3%, and multiples of these values using 10 by 10 grids, strip diagrams, number lines, and numbers; and ***Supporting Standard***

(G) generate equivalent forms of fractions, decimals, and percents using real-world problems, including problems that involve money. ***Readiness Standard***

(6.5) **Proportionality.** The student applies mathematical process standards to solve problems involving proportional relationships. The student is expected to

(C) use equivalent fractions, decimals, and percents to show equal parts of the same whole. ***Supporting Standard***

(6.7) **Expressions, equations, and relationships.** The student applies mathematical process standards to develop concepts of expressions and equations. The student is expected to

(A) generate equivalent numerical expressions using order of operations, including whole number exponents, and prime factorization; ***Readiness Standard***

(B) distinguish between expressions and equations verbally, numerically, and algebraically; ***Supporting Standard***

(C) determine if two expressions are equivalent using concrete models, pictorial models, and algebraic representations; and ***Supporting Standard***

(D) generate equivalent expressions using the properties of operations: inverse, identity, commutative, associative, and distributive properties. ***Readiness Standard***

Reporting Category 2:
Computations and Algebraic Relationships

The student will demonstrate an understanding of how to perform operations and represent algebraic relationships.

(6.3) **Number and operations.** The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions. The student is expected to

(A) recognize that dividing by a rational number and multiplying by its reciprocal result in equivalent values; ***Supporting Standard***

(B) determine, with and without computation, whether a quantity is increased or decreased when multiplied by a fraction, including values greater than or less than one; ***Supporting Standard***

(C) represent integer operations with concrete models and connect the actions with the models to standardized algorithms; ***Supporting Standard***

(D) add, subtract, multiply, and divide integers fluently; and ***Readiness Standard***

(E) multiply and divide positive rational numbers fluently. ***Readiness Standard***

(6.4) **Proportionality.** The student applies mathematical process standards to develop an understanding of proportional relationships in problem situations. The student is expected to

(A) compare two rules verbally, numerically, graphically, and symbolically in the form of $y = ax$ or $y = x + a$ in order to differentiate between additive and multiplicative relationships; and ***Supporting Standard***

(B) apply qualitative and quantitative reasoning to solve prediction and comparison of real-world problems involving ratios and rates. ***Readiness Standard***

(6.5) **Proportionality.** The student applies mathematical process standards to solve problems involving proportional relationships. The student is expected to

(A) represent mathematical and real-world problems involving ratios and rates using scale factors, tables, graphs, and proportions; and ***Supporting Standard***

(B) solve real-world problems to find the whole given a part and the percent, to find the part given the whole and the percent, and to find the percent given the part and the whole, including the use of concrete and pictorial models. ***Readiness Standard***

(6.6) **Expressions, equations, and relationships.** The student applies mathematical process standards to use multiple representations to describe algebraic relationships. The student is expected to

(A) identify independent and dependent quantities from tables and graphs; ***Supporting Standard***

(B) write an equation that represents the relationship between independent and dependent quantities from a table; and ***Supporting Standard***

(C) represent a given situation using verbal descriptions, tables, graphs, and equations in the form $y = kx$ or $y = x + b$. ***Readiness Standard***

(6.9) **Expressions, equations, and relationships.** The student applies mathematical process standards to use equations and inequalities to represent situations. The student is expected to

(A) write one-variable, one-step equations and inequalities to represent constraints or conditions within problems; ***Supporting Standard***

(B) represent solutions for one-variable, one-step equations and inequalities on number lines; and ***Supporting Standard***

(C) write corresponding real-world problems given one-variable, one-step equations or inequalities. ***Supporting Standard***

(6.10) **Expressions, equations, and relationships.** The student applies mathematical process standards to use equations and inequalities to solve problems. The student is expected to

(A) model and solve one-variable, one-step equations and inequalities that represent problems, including geometric concepts; and ***Readiness Standard***

(B) determine if the given value(s) make(s) one-variable, one-step equations or inequalities true. ***Supporting Standard***

Reporting Category 3:
Geometry and Measurement

The student will demonstrate an understanding of how to represent and apply geometry and measurement concepts.

(6.4) **Proportionality.** The student applies mathematical process standards to develop an understanding of proportional relationships in problem situations. The student is expected to

(H) convert units within a measurement system, including the use of proportions and unit rates. ***Readiness Standard***

(6.8) **Expressions, equations, and relationships.** The student applies mathematical process standards to use geometry to represent relationships and solve problems. The student is expected to

(A) extend previous knowledge of triangles and their properties to include the sum of angles of a triangle, the relationship between the lengths of sides and measures of angles in a triangle, and determining when three lengths form a triangle; ***Supporting Standard***

(B) model area formulas for parallelograms, trapezoids, and triangles by decomposing and rearranging parts of these shapes; ***Supporting Standard***

(C) write equations that represent problems related to the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers; and ***Supporting Standard***

(D) determine solutions for problems involving the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers. ***Readiness Standard***

(6.11) **Measurement and data.** The student applies mathematical process standards to use coordinate geometry to identify locations on a plane. The student is expected to

(A) graph points in all four quadrants using ordered pairs of rational numbers. ***Readiness Standard***

Reporting Category 4:
Data Analysis and Personal Financial Literacy

The student will demonstrate an understanding of how to represent and analyze data and how to describe and apply personal financial concepts.

(6.12) **Measurement and data.** The student applies mathematical process standards to use numerical or graphical representations to analyze problems. The student is expected to

(A) represent numeric data graphically, including dot plots, stem-and-leaf plots, histograms, and box plots; ***Supporting Standard***

(B) use the graphical representation of numeric data to describe the center, spread, and shape of the data distribution; ***Supporting Standard***

(C) summarize numeric data with numerical summaries, including the mean and median (measures of center) and the range and interquartile range (IQR) (measures of spread), and use these summaries to describe the center, spread, and shape of the data distribution; and ***Readiness Standard***

(D) summarize categorical data with numerical and graphical summaries, including the mode, the percent of values in each category (relative frequency table), and the percent bar graph, and use these summaries to describe the data distribution. ***Readiness Standard***

(6.13) **Measurement and data.** The student applies mathematical process standards to use numerical or graphical representations to solve problems. The student is expected to

(A) interpret numeric data summarized in dot plots, stem-and-leaf plots, histograms, and box plots; and ***Readiness Standard***

(B) distinguish between situations that yield data with and without variability. ***Supporting Standard***

(6.14) **Personal financial literacy.** The student applies mathematical process standards to develop an economic way of thinking and problem solving useful in one's life as a knowledgeable consumer and investor. The student is expected to

(A) compare the features and costs of a checking account and a debit card offered by different local financial institutions; ***Supporting Standard***

(B) distinguish between debit cards and credit cards; ***Supporting Standard***

(C) balance a check register that includes deposits, withdrawals, and transfers; ***Supporting Standard***

(E) describe the information in a credit report and how long it is retained; ***Supporting Standard***

(F) describe the value of credit reports to borrowers and to lenders; ***Supporting Standard***

(G) explain various methods to pay for college, including through savings, grants, scholarships, student loans, and work-study; and ***Supporting Standard***

(H) compare the annual salary of several occupations requiring various levels of post-secondary education or vocational training and calculate the effects of the different annual salaries on lifetime income. ***Supporting Standard***