2014 TEXAS STAAR TEST – GRADE 8 - MATH

Total Possible Score: 56
Needed Correct to Pass: 22
Advanced Performance: 49

Time Limit: 4 Hours

This file contains the State of Texas Assessments of Academic Readiness administered in Spring, 2014, 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.

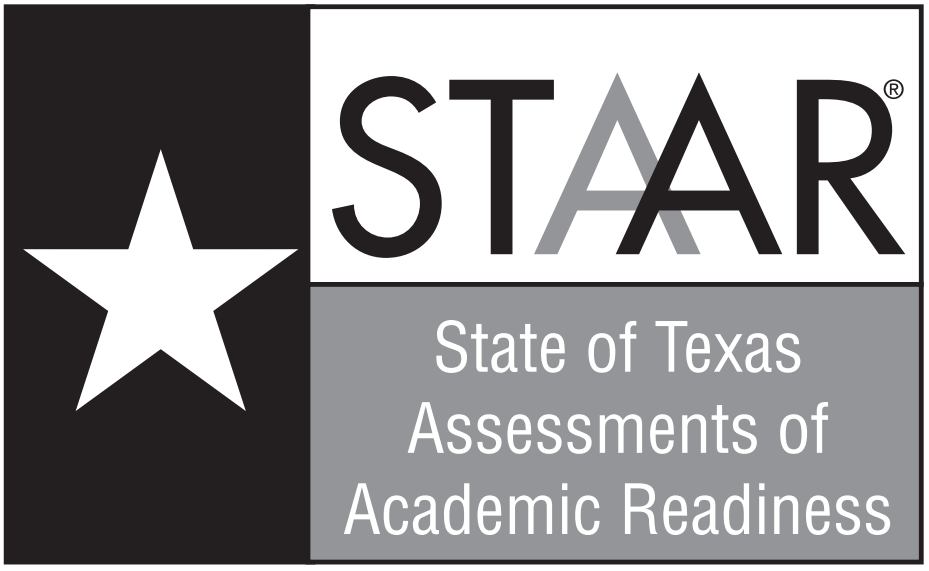
The test in this file may differ somewhat in appearance from the printed version, due to formatting limitations. Since STAAR questions are changed each year, some proposed questions for future tests are included in each year's exams in order to evaluate the questions. Questions being evaluated for future 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/publications/ or by calling 866-447-3577.

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 8

Mathematics

Administered April 2014

RELEASED

STAAR GRADE 8 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)

TIME

1 year = 12 months

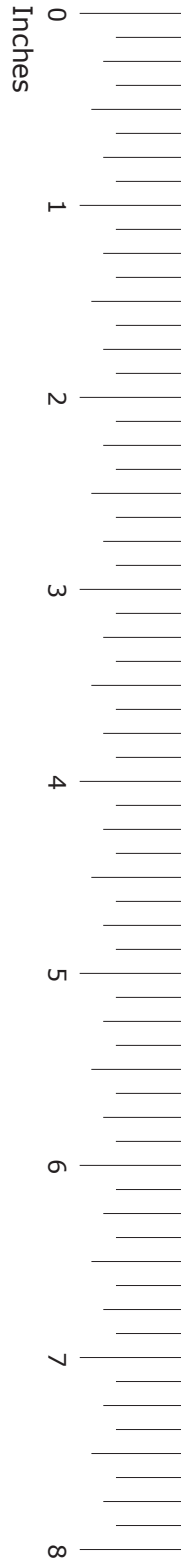
1 year = 52 weeks

1 week = 7 days

1 day = 24 hours

1 hour = 60 minutes

1 minute = 60 seconds



STAAR GRADE 8 MATHEMATICS REFERENCE MATERIALS

CIRCUMFERENCE

Circle	$C = 2\pi r$	or	$C = \pi d$

AREA

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

SURFACE AREA

	Lateral	Total
Prism	$S = Ph$	$S = Ph + 2B$
Pyramid	$S = \frac{1}{2}Pl$	$S = \frac{1}{2}Pl + B$
Cylinder	$S = 2\pi rh$	$S = 2\pi rh + 2\pi r^2$

VOLUME

Prism or cylinder	$V = Bh$
Pyramid or cone	$V = \frac{1}{3}Bh$
Sphere	$V = \frac{4}{3}\pi r^3$

ADDITIONAL INFORMATION

Pi	$\pi \approx 3.14$	or	$\pi \approx \frac{22}{7}$
Pythagorean theorem			$a^2 + b^2 = c^2$

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 Claudia is making a gelatin dessert for a party. She plans on making 12 servings for every 5 people. If each pan Claudia uses to make the dessert holds 8 servings, what is the minimum number of these pans that she needs in order to make enough to feed 10 people?

A 4

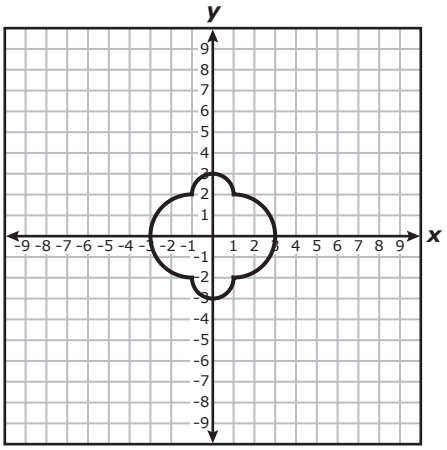
B 2

C 3

D 5

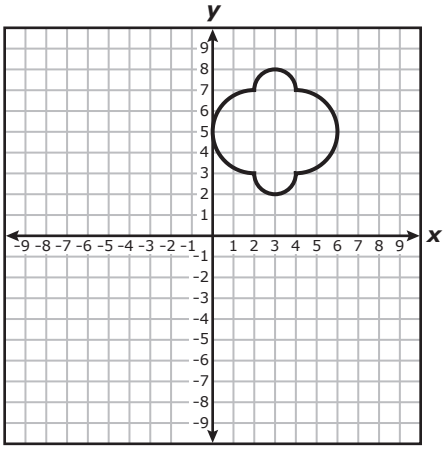
GO ON

2 A figure is shown on the grid below.

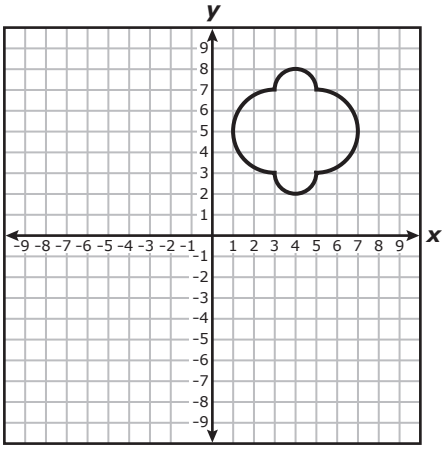


Which graph best represents this figure after it has been translated 5 units up and 3 units to the right?

F



H



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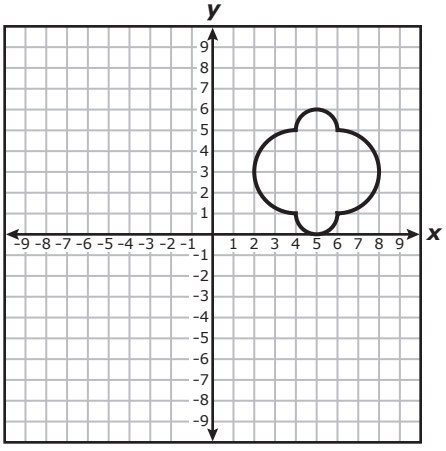
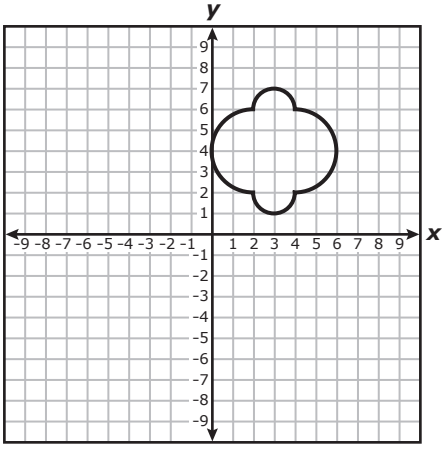


J



GO ON

3 A scientist had a bottle that contained 56.6 mL of a solution. She used 3.2 mL of the solution for an experiment. Then she poured half the solution remaining in the bottle into a beaker. Finally she poured 6 mL of the solution remaining in the bottle into a test tube. How many milliliters of solution remained in the bottle?

A 23.7 mL

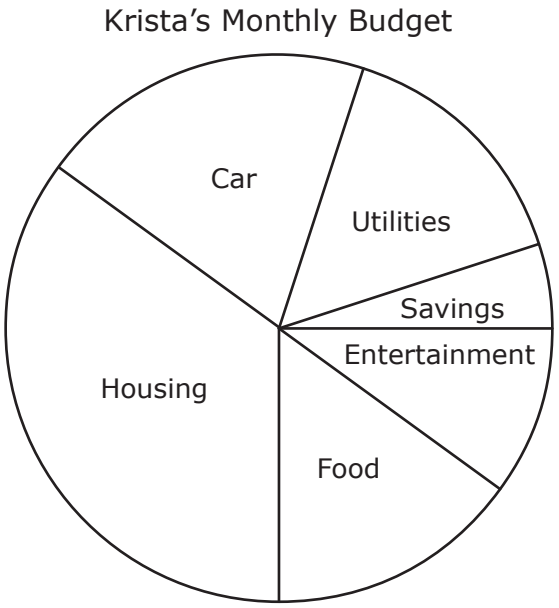
B 21.5 mL

C 19.1 mL

D 20.7 mL

GO ON

4 Krista set up a monthly budget, as represented by the circle graph below.



Which conclusion is NOT supported by the circle graph?

F Krista spends 50% of her income on housing and food.

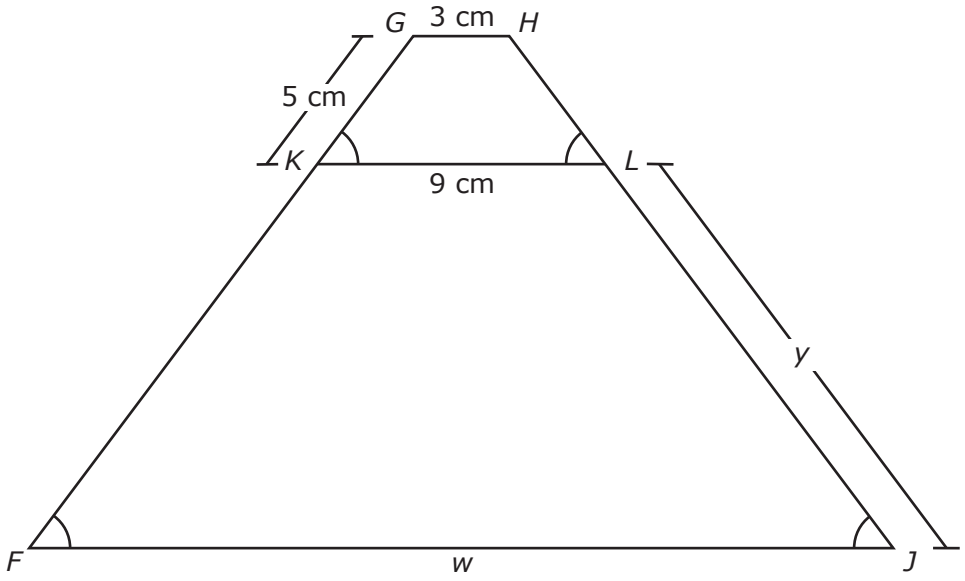
G Krista spends 25% of her income on her car and utilities.

H Krista spends 50% of her income on housing and utilities.

J Krista spends 25% of her income on food and entertainment.

GO ON

5 Janelle drew $\overline{KL}$ in isosceles trapezoid *FGHJ* to create similar trapezoids *FKLJ* and *KGHL*.



Based on the given information, what are the values of *y* and *w* in centimeters?

A $y = 11$ cm and $w = 15$ cm

B $y = 15$ cm and $w = 15$ cm

C $y = 11$ cm and $w = 27$ cm

D $y = 15$ cm and $w = 27$ cm

GO ON

6 A desk drawer contains the different-colored markers listed below.

- 3 green markers
- 5 blue markers
- 10 red markers

A marker will be randomly selected from the drawer and then replaced. Then another marker will be randomly selected from the drawer. What is the probability that a green marker will be selected both times?

F $\frac{1}{36}$

G $\frac{1}{6}$

H $\frac{1}{51}$

J $\frac{1}{54}$

---

7 An electrician charges \$75 for the first hour of labor and \$60 for each additional hour of labor. A customer calculates that the electrician charges \$225 for a total of $3\frac{1}{2}$ hours of labor. Is the customer correct?

A Yes, because $(75 \times 3.5) - 60 = 225$

B No, because $60 + (75 \times 3.5) = 322.50$

C Yes, because $75 + (60 \times 2.5) = 225$

D No, because $(75 \times 2.5) - 60 = 127.50$

GO ON

8 A school counselor surveyed 90 randomly selected students about the languages they speak. Of the students surveyed, 16 speak more than one language fluently. Based on these results, how many of the 1,800 students at the school can be expected to speak more than one language fluently?

F 113

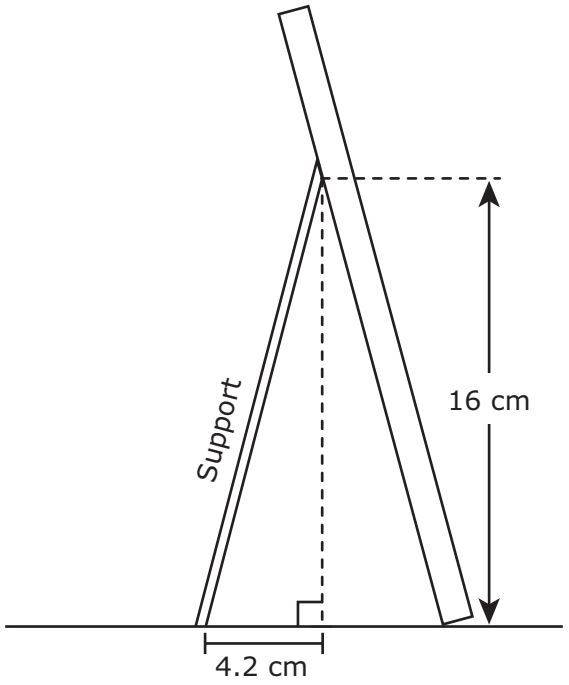
G 288

H 389

J 320

GO ON

9 The drawing below shows a side view of a picture frame on Mary's desk.



Which of the following is closest to the length of the frame support?

A 20 cm

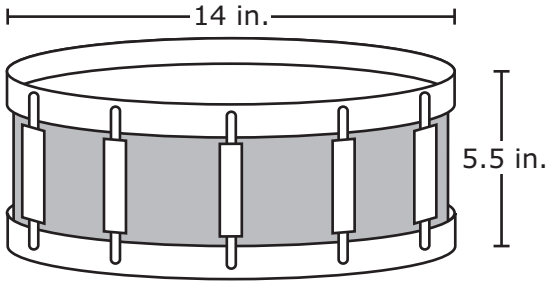
B 15 cm

C 12 cm

D 17 cm

GO ON

10 Regina owns a drum that has a diameter of 14 inches and a height of 5.5 inches, as shown below. She wants to design a new drum by dilating the dimensions of the original drum by a scale factor of 1.4.



What will be the diameter, d, and the height, h, of the new drum?

F $d = 19.6$ in. and $h = 7.7$ in.

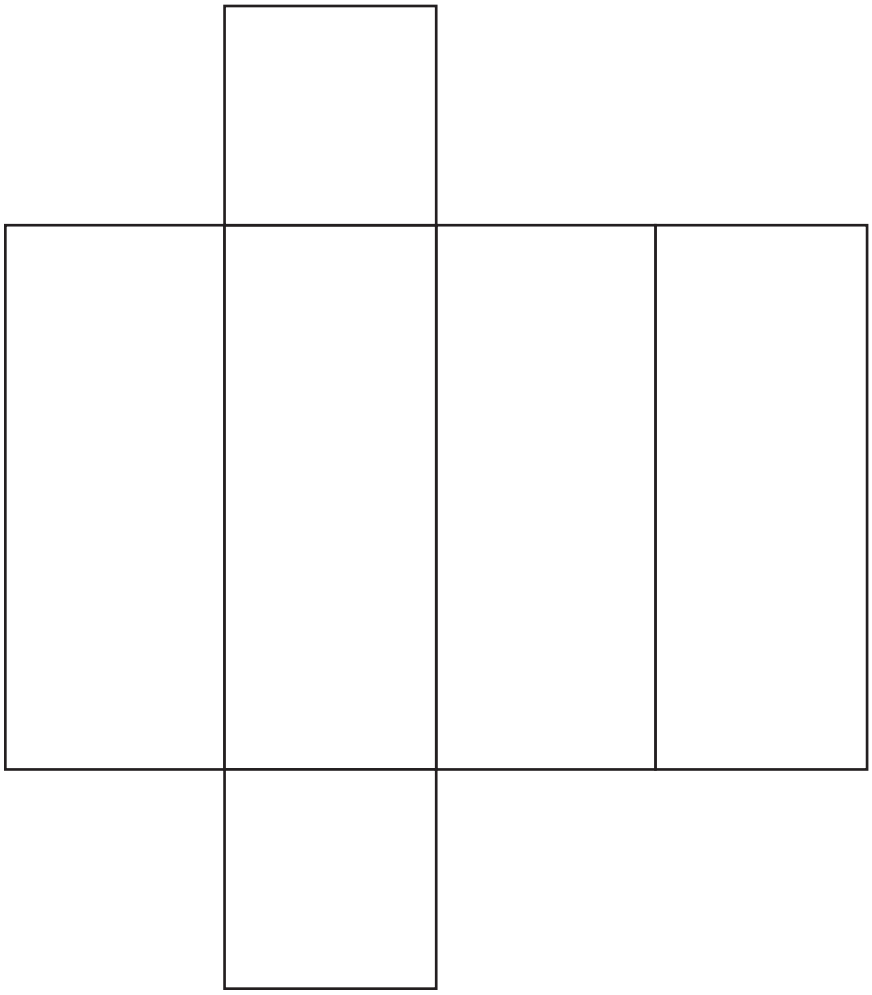
G $d = 15.4$ in. and $h = 6.9$ in.

H $d = 12.5$ in. and $h = 4$ in.

J $d = 22.5$ in. and $h = 14$ in.

GO ON

11 The net of a rectangular prism is shown below. Use the ruler provided to measure the dimensions of the net to the nearest tenth of a centimeter.



Which of the following is closest to the total surface area of this prism?

A 80.6 cm^2

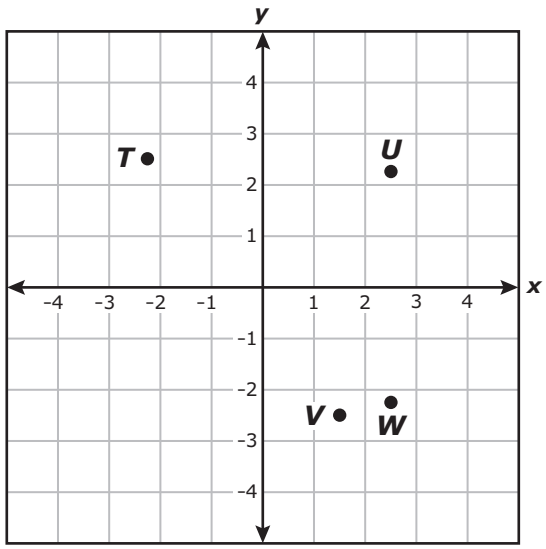
B 98.3 cm^2

C 122.4 cm^2

D 88.8 cm^2

GO ON

12 There are four points graphed on the grid below.



Which point on the grid appears to be located at $(\frac{5}{2}, -\frac{9}{4})$?

F Point *T*

G Point *U*

H Point *V*

J Point *W*

---

13 A can of juice contains 175 calories per 2.5 servings. Which of the following is NOT an equivalent number of calories per serving?

A 280 calories per 4 servings

B 910 calories per 13 servings

C 525 calories per 8 servings

D 630 calories per 9 servings

GO ON

14 A paper drinking cup in the shape of a cone has a height of 10 centimeters and a diameter of 8 centimeters. Which of the following is closest to the volume of the cup in cubic centimeters?

F 167 cm^3

G 209 cm^3

H 670 cm^3

J 502 cm^3

---

15 Anita has a collection of postage stamps from different countries. She has one book that contains 35 stamps. She has a second book that has 7 stamps on each page. The equation below can be used to find t, the total number of postage stamps Anita has if the second book has p pages.

$$t = 35 + 7p$$

How many postage stamps does Anita have in all if the second book has 14 pages?

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

GO ON

16 Seth uses a school camera to take pictures for the yearbook and for the school paper. Last month he took 270 pictures for the yearbook and 180 pictures for the school paper with this camera. Which proportion can be used to determine p, the percentage of the total number of pictures he took that were for the yearbook?

F $\frac{p}{100} = \frac{270}{450}$

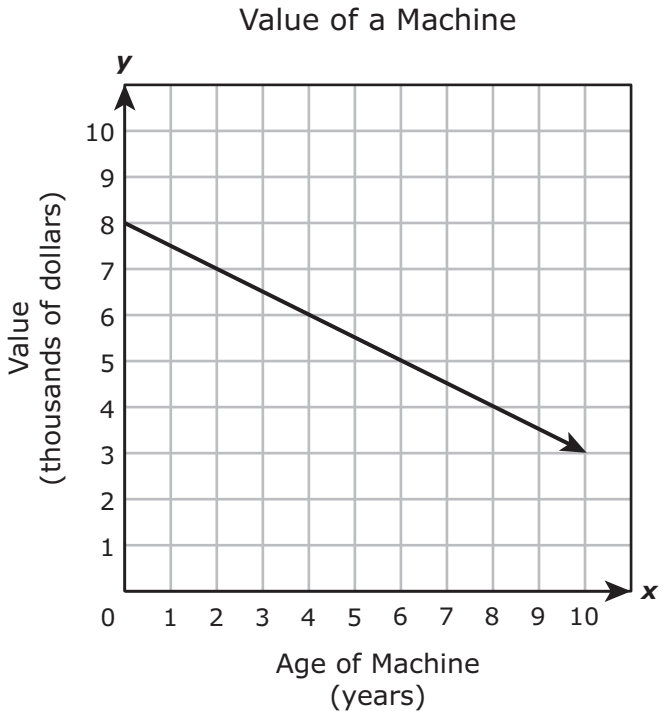
G $\frac{p}{100} = \frac{180}{450}$

H $\frac{p}{100} = \frac{450}{270}$

J $\frac{p}{100} = \frac{270}{180}$

GO ON

17 The graph models the value of a machine over a 10-year period.



Which equation best represents the relationship between x, the age of the machine in years, and y, the value of the machine in dollars over this 10-year period?

A $y = -0.002x + 2{,}500$

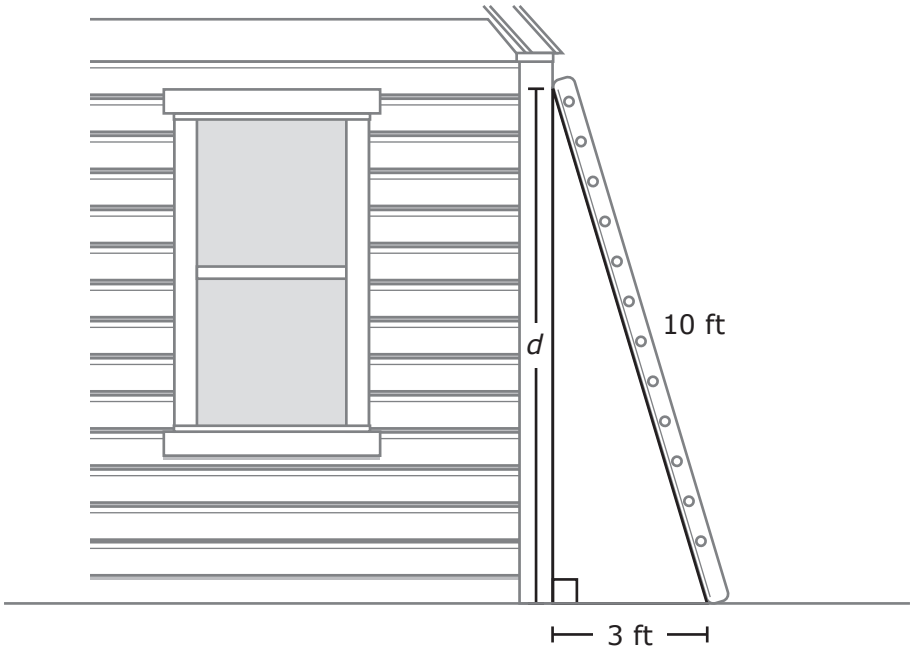
B $y = -500x + 8{,}000$

C $y = 500x + 8{,}000$

D $y = 0.002x + 2{,}500$

GO ON

18 Gwendolyn placed a 10-foot ladder against the side of her house so that the base of the ladder was 3 feet from the base of the house, as shown in the diagram below.



Which measurement in feet is closest to d, the distance from the top of the ladder to the ground?

F 10.4 ft

G 7.0 ft

H 6.5 ft

J 9.5 ft

GO ON

19 During one month, four trees at a nursery increased in height at the rates shown below.

$$8\%,\ \frac{1}{12},\ 16\%,\ \frac{1}{20}$$

Which list shows these rates in order from greatest to least?

A $\frac{1}{20},\ 16\%,\ \frac{1}{12},\ 8\%$

B $16\%,\ \frac{1}{12},\ 8\%,\ \frac{1}{20}$

C $\frac{1}{20},\ 8\%,\ \frac{1}{12},\ 16\%$

D $16\%,\ 8\%,\ \frac{1}{12},\ \frac{1}{20}$

GO ON

20 The table below shows the cost of mailing packages that weigh different amounts.

Cost of Mailing Packages

Package Weight (ounces)	Cost
Up to 1.00	$1.17
1.01 to 2.00	$1.34
2.01 to 3.00	$1.51
3.01 to 4.00	$1.68
4.01 to 5.00	$1.85

If the cost continues to increase as shown in the table, how much will it cost to mail a package that weighs exactly 11 ounces?

F $2.87

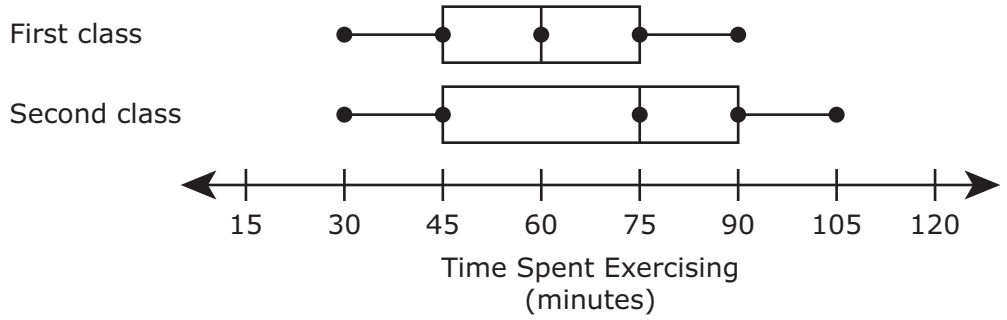
G $4.87

H $3.04

J $5.87

GO ON

21 The number of students in each of 2 exercise classes was the same. The box and whisker plots below represent the average amount of time the students in each class spent exercising daily outside class.



Based on the information in the box and whisker plots, which statement about the time spent exercising outside class appears to be true?

A The median amount of time the first class spent exercising was greater than the median amount of time the second class spent exercising.

B The range for the second class was less than the range for the first class.

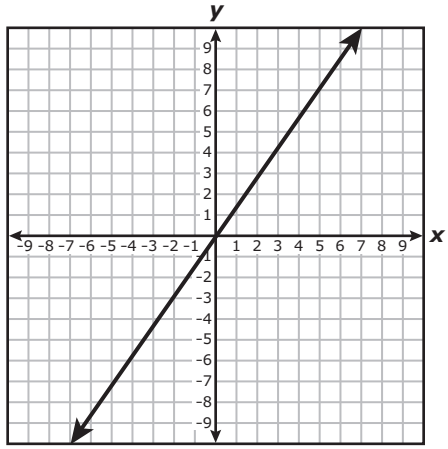
C The interquartile range for the first class was less than the interquartile range for the second class.

D The minimum amount of time the second class spent exercising was greater than the minimum amount of time the first class spent exercising.

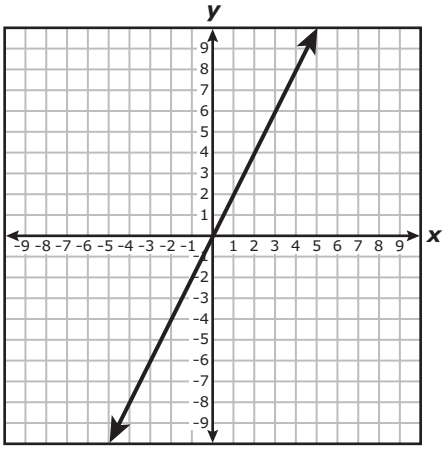
GO ON

22 Which graph best represents the equation $y = 1.4x + 2$?

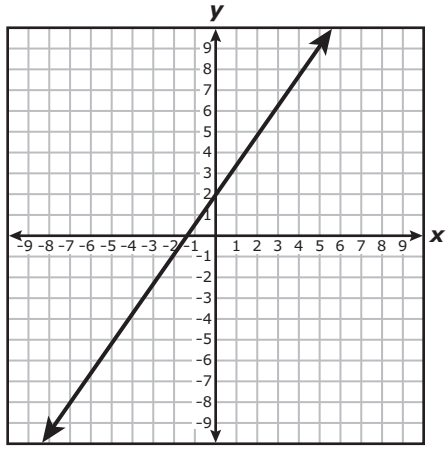
F



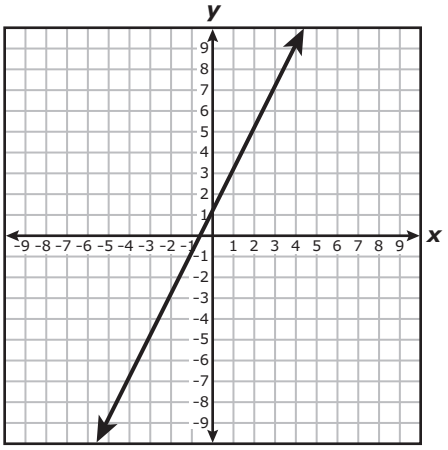
H



G



J



GO ON

23 The roof of a house is in the shape of a square pyramid. The slant height of the pyramid is 17 feet, and the length of each side of the square is 30 feet. What is the lateral surface area of the pyramid in square feet?

A 1,920 ft^2

B 2,040 ft^2

C 1,020 ft^2

D 1,410 ft^2

---

24 Carlos has a square tablecloth with a total area of 48 square feet. Which measurement is closest to the length of each side of the tablecloth in feet?

F 9.8 ft

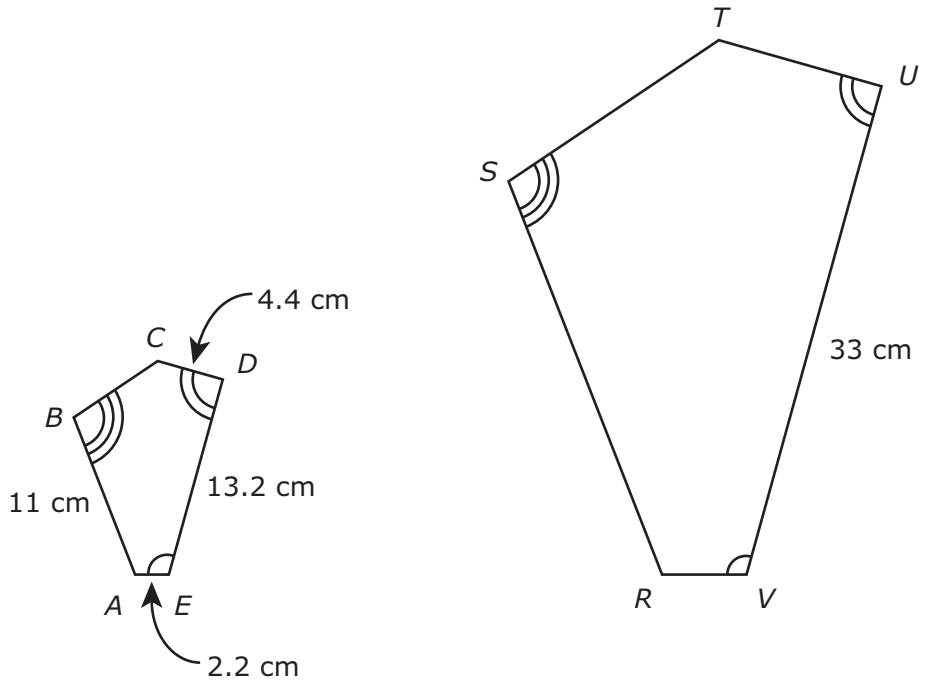
G 5.0 ft

H 12.0 ft

J 6.9 ft

GO ON

25 Pentagon *ABCDE* is similar to pentagon *RSTUV*. The perimeter of pentagon *ABCDE* is 36.8 centimeters.



What is the length of $\overline{ST}$?

A 18 cm

B 25.8 cm

C 15 cm

D 19.8 cm

GO ON

26 The numbers below form an arithmetic sequence.

$$-4, -7, -10, -13, -16, \ldots$$

Which expression can be used to find the nth term in the sequence?

F $-3n - 1$

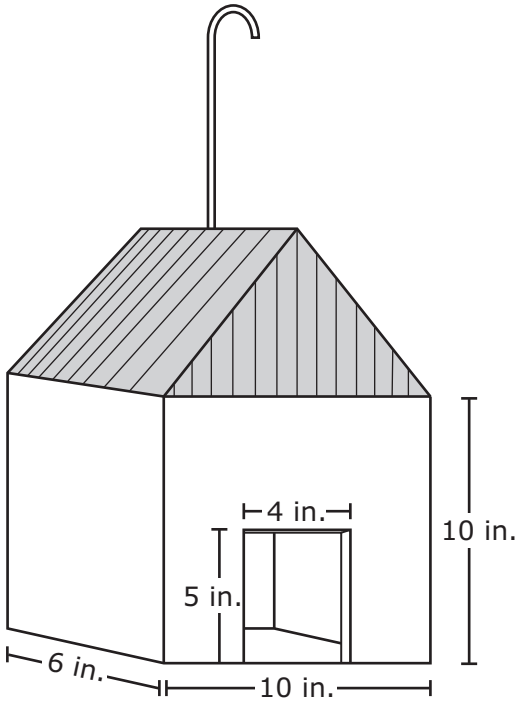
G $3n - 4$

H $-3n + 4$

J $3n + 1$

GO ON

27 Sakura has a birdhouse with rectangular walls, a rectangular bottom, and a rectangular entry, like the one modeled below.



She will paint the four outside walls but not the bottom or the roof of the birdhouse. What is the area that Sakura will paint?

A 320 in.^{2}

B 160 in.^{2}

C 300 in.^{2}

D 140 in.^{2}

GO ON

28 A bag of fruit contains 3 apples, 2 oranges, 1 banana, and 4 pears. Gerald will randomly select two pieces of fruit one at a time from the bag and not put them back. What is the probability that the first piece of fruit Gerald selects will be a banana and the second piece of fruit will be a pear?

F $\frac{1}{25}$

G $\frac{2}{45}$

H $\frac{1}{2}$

J $\frac{4}{9}$

---

29 Jake has two summer jobs. The table below shows how many hours he worked at the two jobs last week and his total earnings from each.

Hours Jake Worked and His Earnings

Job	Hours Worked Last Week	Total Amount Earned Last Week
Cashier	9	$81.00
Grocery stocker	12	$129.00

This week Jake is scheduled to work 11 hours as a cashier and 17 hours as a grocery stocker. Based on the information in the table, what will be the total amount he earns from the two jobs if he works all the scheduled hours this week?

A $281.75

B $252.00

C $271.25

D $280.00

GO ON

30 Roland sold candy bars for a school fund-raiser during three weeks. Some information about Roland's candy-bar sales is provided below.

- Roland sold 26 candy bars during the first week.
- The number of candy bars he sold during the second week was 4 less than 2 times the number of candy bars he sold during the first week.
- The number of candy bars he sold during the third week was 6 more than $1\frac{1}{2}$ times the number of candy bars he sold during the second week.

What was the total number of candy bars Roland sold during the three weeks?

F 145

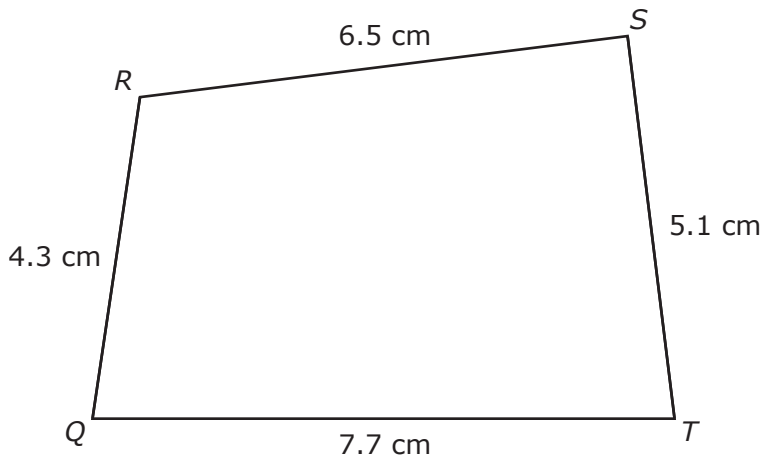
G 152

H 155

J 142

---

31 Polygon *QRST* below was dilated by a scale factor of $\frac{9}{5}$ to create polygon $Q'R'S'T'$.

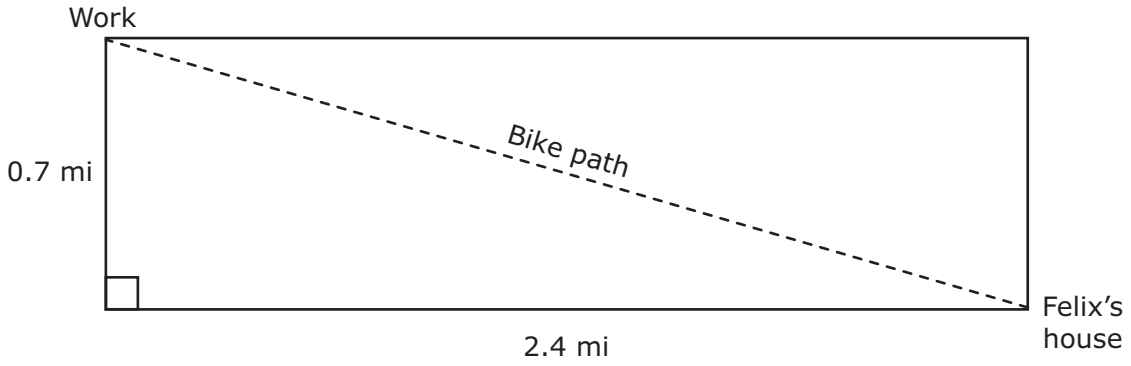


What is the length in centimeters of $\overline{R'S'}$?

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

GO ON

32 To get from home to work, Felix can either take a bike path through the rectangular park or ride his bike along two sides of the park.



How much farther would Felix travel by riding along two sides of the park than he would by taking the path through the park?

F 1.7 mi

G 0.6 mi

H 2.5 mi

J 0.1 mi

---

33 A baseball coach bought some bats and gloves for the school's baseball team. The bats cost \$20 to \$35, and the gloves cost \$30 to \$60. Which of these does NOT represent a reasonable total purchase price for 15 bats and 12 gloves?

A \$1,350

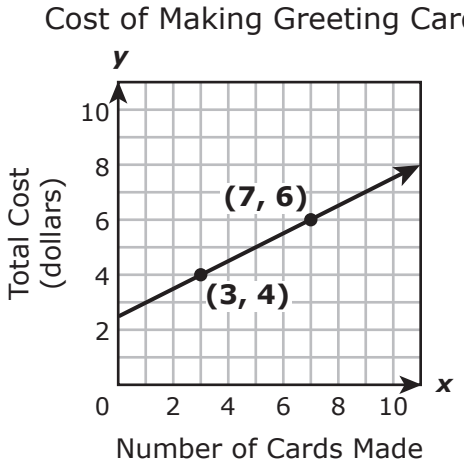
B \$890

C \$1,200

D \$705

GO ON

34 Sal purchased some art supplies and card stock in order to make greeting cards. The graph below shows the relationship between the number of cards Sal makes and the total cost of the materials used to make the cards.



Based on the graph, what will be the total cost of making 25 greeting cards?

F $12.50

G $50.00

H $52.50

J $15.00

GO ON

35 The director of a middle school play wants to find out how many students at the school plan to see the play on opening night. Which sampling method is most likely to provide valid results?

A Surveying 2 randomly chosen students from each of the 25 homeroom classes at the school

B Surveying 50 randomly chosen students in eighth grade

C Surveying 5 randomly chosen students from each of the 10 art classes at the school

D Surveying 10 randomly chosen students reading in the library during 5 different lunch periods

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36 A community center is collecting blankets. The director of the center has asked 135 families to donate 3 blankets each. If 20% to 40% of the families donate 3 blankets each, which of these could be the number of blankets the center collects from these families?

F 240

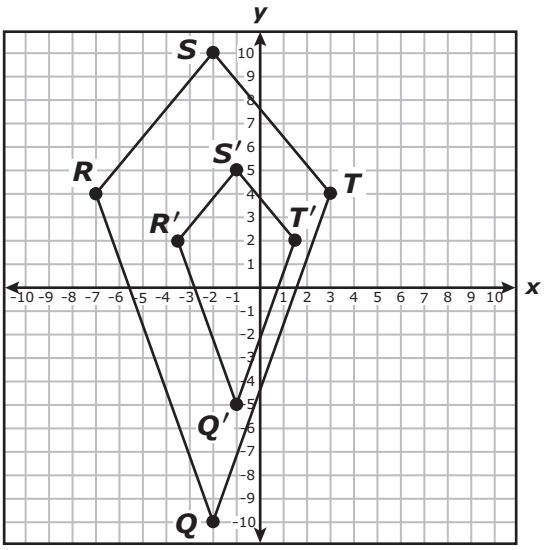
G 50

H 110

J 170

GO ON

37 Quadrilateral $Q'R'S'T'$ is a dilation of quadrilateral $QRST$, with the origin as the center of dilation.



What appears to be the scale factor used to create this dilation?

A 4

B 0.5

C 2

D 0.25

GO ON

38 A ball shaped like a sphere has a radius of approximately $2\frac{1}{8}$ inches. Which of the following is the best estimate of the volume of the ball?

F 32 in.^{3}

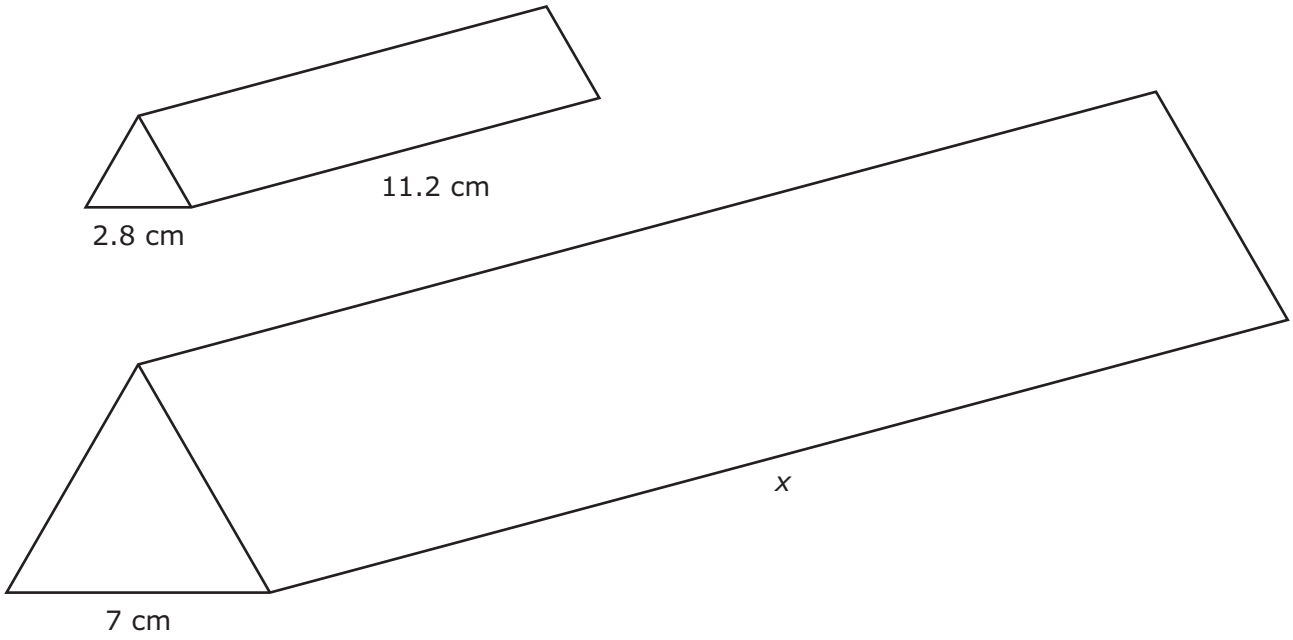
G 11 in.^{3}

H 25 in.^{3}

J 17 in.^{3}

---

39 The bases of the two similar triangular prisms shown below are equilateral triangles.



What is the value of x, an edge length of the larger prism in centimeters?

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

GO ON

40 As part of a survey, 50 students were asked about their favorite lunch item. The results are shown in the table below.

Lunch Preferences

Favorite Item	Number of Students
Pizza	10
Tacos	5
Hot dogs	15
Hamburgers	20

The cafeteria manager knows that about 300 students buy lunch from the cafeteria each day. Based on the table, she predicts that 60 students will buy pizza each day. Which statement about her prediction is true?

F Her prediction is invalid because $\frac{1}{5}$ of 50 is 10.

G Her prediction is invalid because $\frac{1}{4}$ of 300 is 75.

H Her prediction is valid because 120% of 50 is 60.

J Her prediction is valid because 20% of 300 is 60.

GO ON

41 A cube is dilated by a scale factor of $\frac{3}{4}$ to create a new cube. The surface area of the new cube is —

A $\frac{3}{2}$ the surface area of the original cube

B $\frac{27}{64}$ the surface area of the original cube

C $\frac{9}{16}$ the surface area of the original cube

D $\frac{9}{4}$ the surface area of the original cube

---

42 The money in Juan's savings account earns $1\frac{1}{4}\%$ interest. Which value is less than $1\frac{1}{4}\%$?

F $\frac{5}{4}$

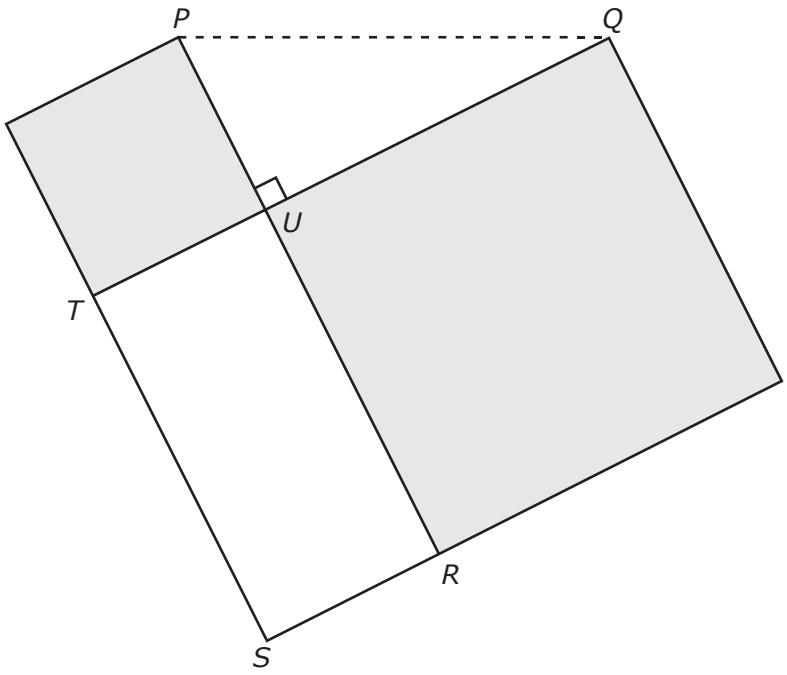
G 0.125

H $\frac{1}{80}$

J 0.0114

GO ON

43 In the diagram below, *RSTU* is a rectangle, and the two shaded regions are squares.



If the length of $\overline{SR}$ is 4 m and the length of $\overline{ST}$ is 8 m, what is the length of $\overline{PQ}$ in meters?

A $\sqrt{80}$ m

B $\sqrt{24}$ m

C $\sqrt{68}$ m

D $\sqrt{144}$ m

GO ON

44 Leonard had t tickets for the rides at a county fair. He kept 9 of the tickets and gave an equal number of the remaining tickets to 6 of his friends. There were no tickets left over. Which equation can be used to find f, the number of tickets Leonard gave to each of his friends?

F $f = \frac{t}{6} + 9$

G $f = \frac{t + 9}{6}$

H $f = \frac{t}{6} - 9$

J $f = \frac{t - 9}{6}$

---

45 One weekend Greg and Darius shoveled snow to earn spending money. Together they earned \$12.50 an hour for 9 hours of work. Each received half the total earnings. If Greg then spent \$15 on a new CD, what was the total amount he had left, in dollars and cents, from the money he earned shoveling snow that weekend?

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

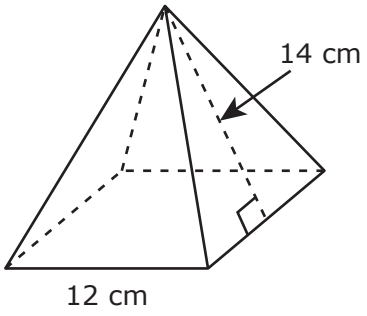
GO ON

46 Trent used the expression below to find the volume, in cubic centimeters, of a square pyramid.

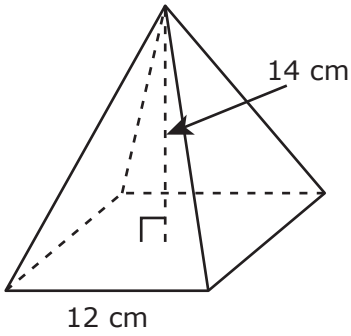
$$\frac{1}{3}(12^2)(14)$$

Which square pyramid has a volume equal to the value of the expression Trent wrote?

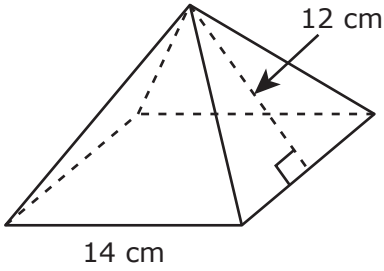
F



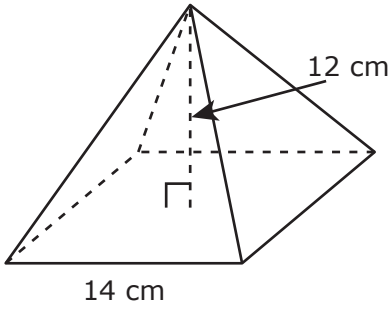
H



G



J



GO ON

47 Dominic used the equation below to find d, the amount in dollars he would spend on gasoline to drive a distance of m miles.

$$d = \frac{m}{25}(3.5)$$

Based on this equation, how much would Dominic spend on gasoline to drive a distance of 180 miles?

A $25.20

B $21.00

C $24.50

D $28.00

---

48 Abdul is 5 feet tall. Which equation can be used to determine h, Abdul's height in centimeters, if 1 inch is equal to 2.54 centimeters?

F $h = 2.54(5)$

G $h = \frac{1}{2.54}(5)(12)$

H $h = 2.54(5)(12)$

J $h = \frac{1}{2.54}(5)$

GO ON

49 Jessica skated 4 laps in 82 seconds. Which of the following is an equivalent rate of skating?

A 6 laps in 120 seconds

B 10 laps in 205 seconds

C 6 laps in 130 seconds

D 10 laps in 215 seconds

---

50 Which list shows the numbers below in order from least to greatest?

$$-6\frac{1}{2},\ 7.25,\ \frac{46}{7},\ 6\frac{1}{4},\ -5.58,\ \frac{84}{9}$$

F $-6\frac{1}{2},\ -5.58,\ 6\frac{1}{4},\ \frac{46}{7},\ 7.25,\ \frac{84}{9}$

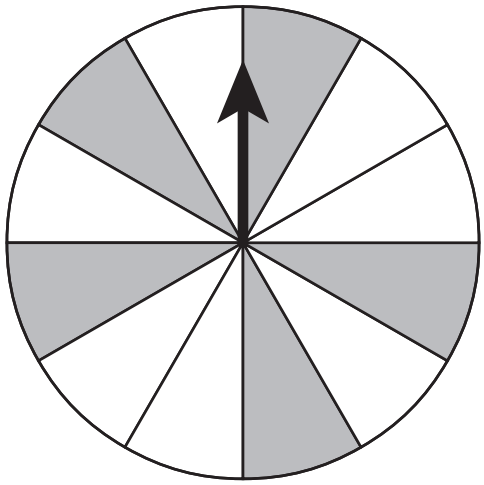
G $-5.58,\ 6\frac{1}{4},\ \frac{46}{7},\ -6\frac{1}{2},\ \frac{84}{9},\ 7.25$

H $-6\frac{1}{2},\ 6\frac{1}{4},\ -5.58,\ \frac{46}{7},\ 7.25,\ \frac{84}{9}$

J $-5.58,\ -6\frac{1}{2},\ 6\frac{1}{4},\ \frac{46}{7},\ 7.25,\ \frac{84}{9}$

GO ON

51 The spinner below has 12 congruent sections.



Sarah will spin the arrow on the spinner twice. What is the probability that the arrow will land on a shaded section of the spinner on both spins?

A $\frac{25}{144}$

B $\frac{1}{9}$

C $\frac{5}{33}$

D $\frac{25}{49}$

GO ON

52 John is having a new deck built. He paid $485 for the required materials, and he will pay his brother $25 an hour to build the deck. Which table shows the relationship between *h*, the number of hours John's brother works, and *c*, the total cost of the project?

F

h	*c*
0	485
3	510
8	535
12	560

H

h	*c*
0	485
3	560
8	685
12	785

G

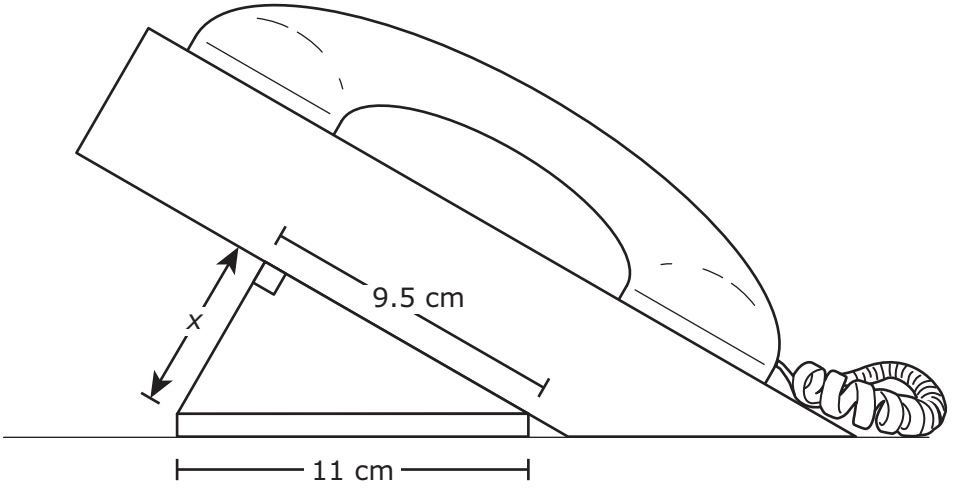
h	*c*
0	510
3	535
8	560
12	585

J

h	*c*
0	510
3	585
8	710
12	810

GO ON

53 A side view of a desk telephone is shown below.



Which of the following is closest to the value of x?

A 2 cm

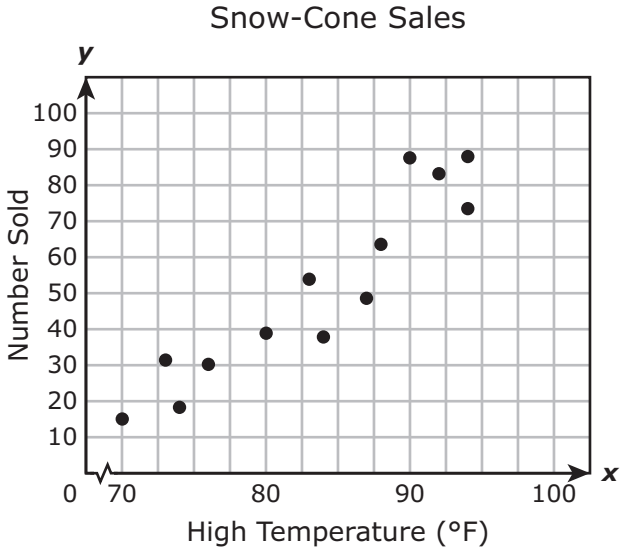
B 10 cm

C 20 cm

D 6 cm

GO ON

54 The scatterplot below shows the relationship between the daily high temperature and the number of snow cones sold at a concession stand on that day.



Based on the scatterplot, approximately how many snow cones will be sold on a day when the high temperature is 82°F?

F 63

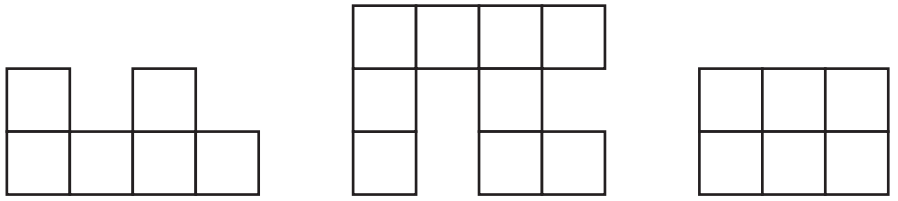
G 46

H 29

J 33

GO ON

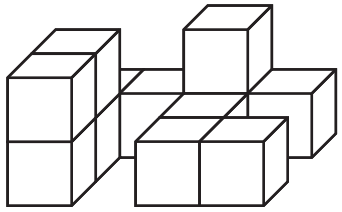
55 The drawing below shows the front, top, and right-side views of a three-dimensional figure made of identical cubes.



Front view Top view Right-side view

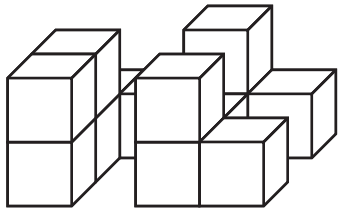
Which figure is NOT represented by these views?

A



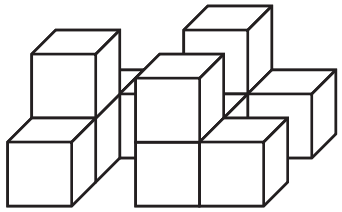
Front

C



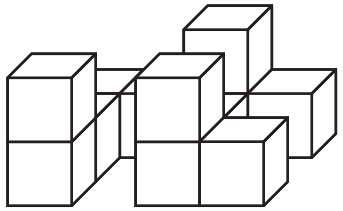
Front

B



Front

D



Front

GO ON

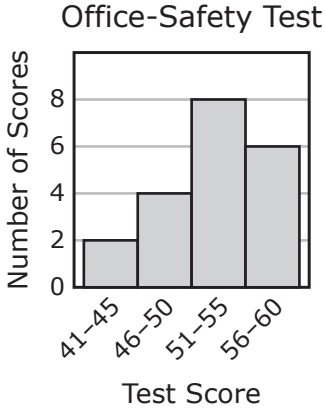
56 Each of the 20 employees in an office took a 60-point test on office safety. The test scores are listed in the table below.

Scores on Office-Safety Test

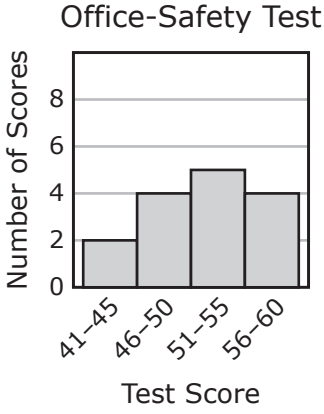
41	50	53	56
44	51	53	57
47	52	54	58
48	52	55	58
49	52	56	60

Which histogram best represents the data in the table?

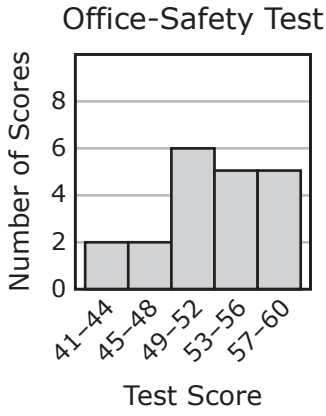
F



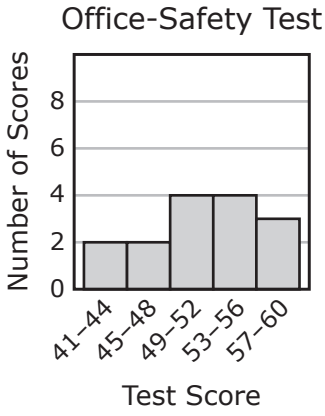
H



G



J



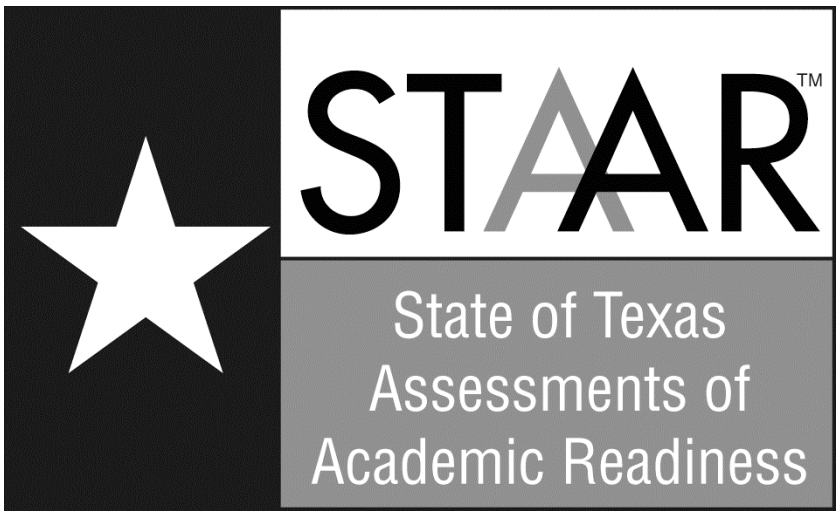
BE SURE YOU HAVE RECORDED ALL OF YOUR ANSWERS ON THE ANSWER DOCUMENT.

STOP

STAAR
GRADE 8
Mathematics
April 2014

866199 1 2 3 4 5 A B C D E Printed in the USA ISD7195

Item Number	Reporting Category	Readiness or Supporting	Content Student Expectation	Process Student Expectation	Correct Answer
1	2	Readiness	8.3(B)	8.14(A)	C
2	3	Supporting	8.6(B)		F
3	1	Readiness	8.2(B)	8.14(B)	D
4	5	Readiness	8.13(B)	8.15(A)	G
5	4	Readiness	8.9(B)		D
6	5	Readiness	8.11(A)	8.14(A)	F
7	1	Supporting	8.2(A)	8.16(B)	C
8	5	Supporting	8.11(B)	8.14(A)	J
9	4	Readiness	8.9(A)	8.14(B)	D
10	3	Readiness	8.6(A)	8.14(A)	F
11	4	Supporting	8.8(A)	8.14(D)	B
12	3	Supporting	8.7(D)		J
13	2	Supporting	8.3(A)	8.14(A)	C
14	4	Readiness	8.8(C)	8.14(B)	F
15	2	Readiness	8.5(A)	8.14(A)	133
16	1	Supporting	8.1(B)	8.15(A)	F
17	2	Readiness	8.4(A)	8.15(A)	B
18	4	Readiness	8.9(A)	8.14(B)	J
19	1	Readiness	8.1(A)		B
20	2	Readiness	8.5(A)	8.14(C)	F
21	5	Supporting	8.12(A)	8.15(A)	C
22	2	Readiness	8.4(A)	8.15(A)	G
23	4	Readiness	8.8(C)	8.14(C)	C
24	1	Supporting	8.1(C)	8.14(C)	J
25	4	Readiness	8.9(B)	8.14(B)	C
26	2	Supporting	8.5(B)	8.16(A)	F
27	3	Supporting	8.7(B)	8.14(B)	C
28	5	Readiness	8.11(A)	8.14(A)	G
29	2	Readiness	8.3(B)	8.14(B)	A
30	1	Readiness	8.2(B)	8.14(B)	G
31	3	Readiness	8.6(A)		11.7
32	4	Readiness	8.9(A)	8.14(B)	G
33	1	Supporting	8.2(C)	8.14(B)	A
34	2	Readiness	8.5(A)	8.14(A)	J
35	5	Supporting	8.13(A)	8.16(B)	A
36	2	Readiness	8.3(B)	8.14(B)	H
37	3	Readiness	8.6(A)		B
38	4	Readiness	8.8(C)	8.14(B)	F
39	4	Readiness	8.9(B)		28
40	5	Readiness	8.13(B)	8.16(B)	J
41	4	Supporting	8.10(A)	8.15(A)	C
42	1	Readiness	8.1(A)		J
43	3	Supporting	8.7(C)	8.15(A)	A
44	2	Readiness	8.4(A)	8.15(A)	J
45	1	Readiness	8.2(B)	8.14(B)	41.25
46	4	Supporting	8.8(B)		H
47	2	Readiness	8.5(A)	8.14(A)	A
48	1	Supporting	8.2(D)	8.15(A)	H
49	2	Supporting	8.3(A)	8.14(C)	B
50	1	Readiness	8.1(A)		F
51	5	Readiness	8.11(A)	8.14(A)	A
52	2	Readiness	8.4(A)	8.15(A)	H
53	4	Readiness	8.9(A)	8.14(B)	D
54	5	Supporting	8.12(B)	8.14(D)	G
55	3	Supporting	8.7(A)	8.15(A)	D
56	5	Supporting	8.12(C)	8.15(A)	F



Grade 8 Mathematics Assessment

Eligible Texas Essential Knowledge and Skills

Texas Education Agency
Student Assessment Division
Spring 2011

STAAR Grade 8 Mathematics Assessment

Reporting Category 1: Numbers, Operations, and Quantitative Reasoning

The student will demonstrate an understanding of numbers, operations, and quantitative reasoning.

(8.1) **Number, operation, and quantitative reasoning.** The student understands that different forms of numbers are appropriate for different situations. The student is expected to

(A) compare and order rational numbers in various forms including integers, percents, and positive and negative fractions and decimals; ***Readiness Standard***

(B) select and use appropriate forms of rational numbers to solve real-life problems including those involving proportional relationships; ***Supporting Standard***

(C) approximate (mentally [and with calculators]) the value of irrational numbers as they arise from problem situations (such as $\pi, \sqrt{2}$); and ***Supporting Standard***

(D) express numbers in scientific notation, including negative exponents, in appropriate problem situations. ***Supporting Standard***

(8.2) **Number, operation, and quantitative reasoning.** The student selects and uses appropriate operations to solve problems and justify solutions. The student is expected to

(A) select appropriate operations to solve problems involving rational numbers and justify the selections; ***Supporting Standard***

(B) use appropriate operations to solve problems involving rational numbers in problem situations; ***Readiness Standard***

(C) evaluate a solution for reasonableness; and ***Supporting Standard***

(D) use multiplication by a given constant factor (including unit rate) to represent and solve problems involving proportional relationships including conversions between measurement systems. ***Supporting Standard***

Texas Education Agency
Student Assessment Division
Spring 2011

Reporting Category 2:
Patterns, Relationships, and Algebraic Reasoning

The student will demonstrate an understanding of patterns, relationships, and algebraic reasoning.

(8.3) **Patterns, relationships, and algebraic thinking.** The student identifies proportional or non-proportional linear relationships in problem situations and solves problems. The student is expected to

(A) compare and contrast proportional and non-proportional linear relationships; and ***Supporting Standard***

(B) estimate and find solutions to application problems involving percents and other proportional relationships such as similarity and rates. ***Readiness Standard***

(8.4) **Patterns, relationships, and algebraic thinking.** The student makes connections among various representations of a numerical relationship. The student is expected to

(A) generate a different representation of data given another representation of data (such as a table, graph, equation, or verbal description). ***Readiness Standard***

(8.5) **Patterns, relationships, and algebraic thinking.** The student uses graphs, tables, and algebraic representations to make predictions and solve problems. The student is expected to

(A) predict, find, and justify solutions to application problems using appropriate tables, graphs, and algebraic equations; and ***Readiness Standard***

(B) find and evaluate an algebraic expression to determine any term in an arithmetic sequence (with a constant rate of change). ***Supporting Standard***

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Student Assessment Division
Spring 2011

Reporting Category 3:
Geometry and Spatial Reasoning

The student will demonstrate an understanding of geometry and spatial reasoning.

(8.6) **Geometry and spatial reasoning.** The student uses transformational geometry to develop spatial sense. The student is expected to

(A) generate similar figures using dilations including enlargements and reductions; and ***Readiness Standard***

(B) graph dilations, reflections, and translations on a coordinate plane. ***Supporting Standard***

(8.7) **Geometry and spatial reasoning.** The student uses geometry to model and describe the physical world. The student is expected to

(A) draw three-dimensional figures from different perspectives; ***Supporting Standard***

(B) use geometric concepts and properties to solve problems in fields such as art and architecture; ***Supporting Standard***

(C) use pictures or models to demonstrate the Pythagorean Theorem; and ***Supporting Standard***

(D) locate and name points on a coordinate plane using ordered pairs of rational numbers. ***Supporting Standard***

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Student Assessment Division
Spring 2011

Reporting Category 4: Measurement

The student will demonstrate an understanding of the concepts and uses of measurement.

(8.8) **Measurement.** The student uses procedures to determine measures of three-dimensional figures. The student is expected to

(A) find lateral and total surface area of prisms, pyramids, and cylinders using [concrete] models and nets (two-dimensional models); ***Supporting Standard***

(B) connect models of prisms, cylinders, pyramids, spheres, and cones to formulas for volume of these objects; and ***Supporting Standard***

(C) estimate measurements and use formulas to solve application problems involving lateral and total surface area and volume. ***Readiness Standard***

(8.9) **Measurement.** The student uses indirect measurement to solve problems. The student is expected to

(A) use the Pythagorean Theorem to solve real-life problems; and ***Readiness Standard***

(B) use proportional relationships in similar two-dimensional figures or similar three-dimensional figures to find missing measurements. ***Readiness Standard***

(8.10) **Measurement.** The student describes how changes in dimensions affect linear, area, and volume measures. The student is expected to

(A) describe the resulting effects on perimeter and area when dimensions of a shape are changed proportionally; and ***Supporting Standard***

(B) describe the resulting effect on volume when dimensions of a solid are changed proportionally. ***Supporting Standard***

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Reporting Category 5:
Probability and Statistics

The student will demonstrate an understanding of probability and statistics.

(8.11) **Probability and statistics.** The student applies concepts of theoretical and experimental probability to make predictions. The student is expected to

(A) find the probabilities of dependent and independent events; and ***Readiness Standard***

(B) use theoretical probabilities and experimental results to make predictions and decisions. ***Supporting Standard***

(8.12) **Probability and statistics.** The student uses statistical procedures to describe data. The student is expected to

(A) use variability (range, including interquartile range (IQR)) and select the appropriate measure of central tendency to describe a set of data and justify the choice for a particular situation; ***Supporting Standard***

(B) draw conclusions and make predictions by analyzing trends in scatterplots; and ***Supporting Standard***

(C) select and use an appropriate representation for presenting and displaying relationships among collected data, including line plots, line graphs, stem and leaf plots, circle graphs, bar graphs, box and whisker plots, histograms, and Venn diagrams, with and without the use of technology. ***Supporting Standard***

(8.13) **Probability and statistics.** The student evaluates predictions and conclusions based on statistical data. The student is expected to

(A) evaluate methods of sampling to determine validity of an inference made from a set of data; and ***Supporting Standard***

(B) recognize misuses of graphical or numerical information and evaluate predictions and conclusions based on data analysis. ***Readiness Standard***

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Spring 2011

Underlying Processes and Mathematical Tools

These skills will not be listed under a separate recording category. Instead, they will be incorporated into at least 75% of the test questions in reporting categories 1–5 and will be identified along with content standards.

(8.14) **Underlying processes and mathematical tools.** The student applies Grade 8 mathematics to solve problems connected to everyday experiences, investigations in other disciplines, and activities in and outside of school. The student is expected to

(A) identify and apply mathematics to everyday experiences, to activities in and outside of school, with other disciplines, and with other mathematical topics;

(B) use a problem-solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness;

(C) select or develop an appropriate problem-solving strategy from a variety of different types, including drawing a picture, looking for a pattern, systematic guessing and checking, acting it out, making a table, working a simpler problem, or working backwards to solve a problem; and

(D) select tools such as real objects, manipulatives, paper/pencil, and technology or techniques such as mental math, estimation, and number sense to solve problems.

(8.15) **Underlying processes and mathematical tools.** The student communicates about Grade 8 mathematics through informal and mathematical language, representations, and models. The student is expected to

(A) communicate mathematical ideas using language, efficient tools, appropriate units, and graphical, numerical, physical, or algebraic mathematical models.

(8.16) **Underlying processes and mathematical tools.** The student uses logical reasoning to make conjectures and verify conclusions. The student is expected to

(A) make conjectures from patterns or sets of examples and nonexamples; and

(B) validate his/her conclusions using mathematical properties and relationships.

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