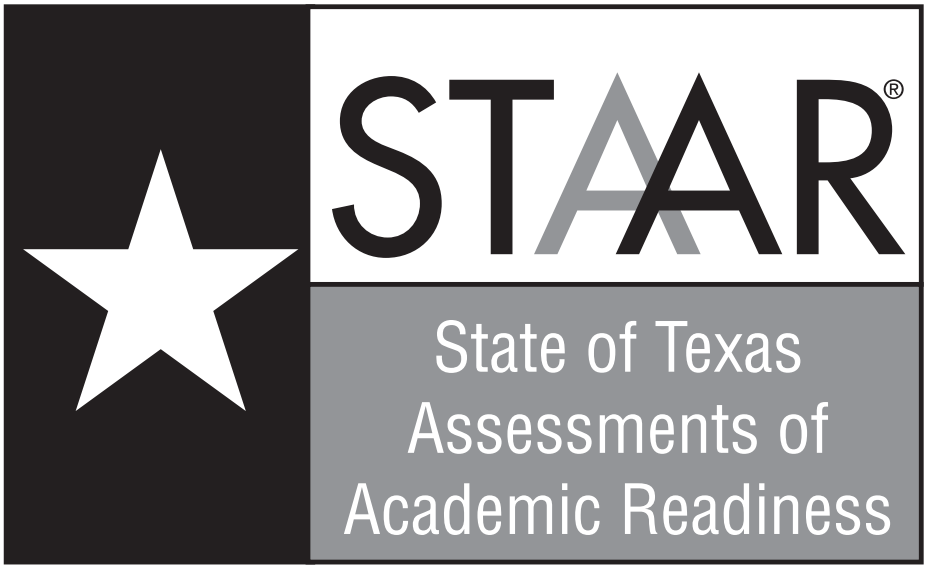

GRADE 7

Mathematics

Administered April 2013

RELEASED

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STAAR GRADE 7 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

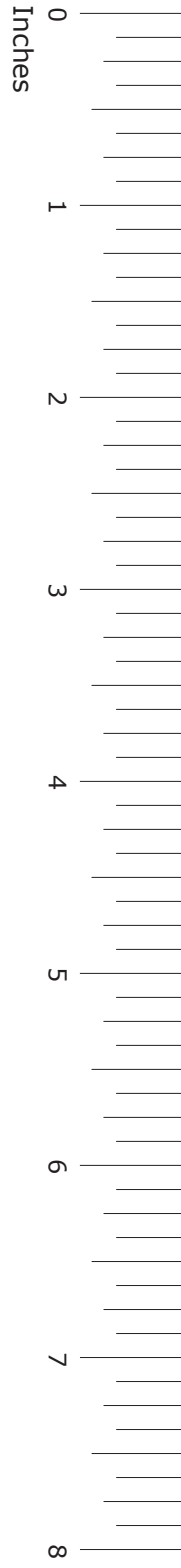
1 year = 52 weeks

1 week = 7 days

1 day = 24 hours

1 hour = 60 minutes

1 minute = 60 seconds



STAAR GRADE 7 MATHEMATICS REFERENCE MATERIALS

PERIMETER			
Rectangle			$P = 2l + 2w$

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

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

VOLUME			
Triangular prism			$V = Bh$
Rectangular prism			$V = Bh$
Cylinder	$V = \pi r^2 h$	or	$V = Bh$

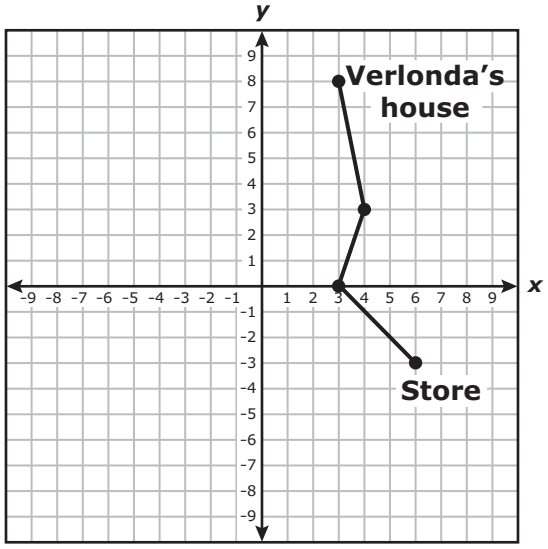
ADDITIONAL INFORMATION			
Pi	$\pi \approx 3.14$	or	$\pi \approx \frac{22}{7}$

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 The route that Verlonda takes from her house to a store is represented on the grid below.



Which ordered pair represents a point on Verlonda's route?

A $(0, -3)$

B $(-3, 6)$

C $(3, 4)$

D $(3, 8)$

GO ON

2 Angelo's pet rabbit weighs 1 pound less than twice the weight of Carmen's pet rabbit. Angelo's rabbit weighs 9 pounds. Which equation can be used to find w, the weight of Carmen's pet rabbit?

F $9 = 2w + 1$

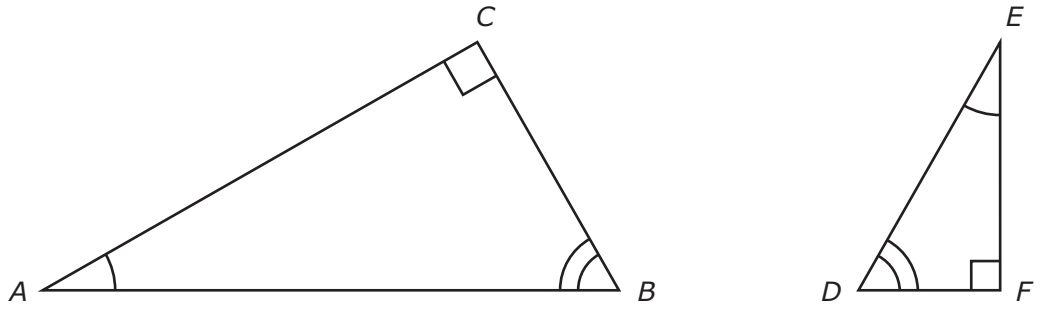
G $9 = 2w - 1$

H $w - 9 = 1$

J $w + 9 = 1$

---

3 The triangles shown below are similar.



Which line segment corresponds to $\overline{AC}$?

A $\overline{BC}$

B $\overline{EF}$

C $\overline{DE}$

D $\overline{DF}$

GO ON

4 A storage trunk is shaped like a rectangular prism. The trunk's volume is 18 cubic feet. The length of the trunk is 6 feet, and the width of the trunk is 2 feet. What is the height of this trunk?

F 12 feet

G $3\frac{1}{3}$ feet

H 6 feet

J Not here

---

5 Jackie has a puzzle book that contains a total of 65 puzzles. She has completed $\frac{2}{5}$ of the puzzles in the book. If Jackie completes 13 more puzzles, what is the total number of puzzles that she will have completed in the book?

A 26, because $\frac{2}{5}(65) = 26$

B 52, because $\frac{2}{5} + \frac{2}{5} = \frac{4}{5}$ and $\frac{4}{5}(65) = 52$

C 39, because $\frac{2}{5}(65) = 26$ and $26 + 13 = 39$

D Not here

GO ON

6 The table below shows the number of minutes Melissa ran each day during three weeks when she was training for a race.

Melissa's Training Plan

	Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
Week 1	10	10	10	12	12	0	15
Week 2	15	18	8	18	20	0	20
Week 3	22	22	20	24	24	0	26

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

F The total number of minutes Melissa ran in Week 3 is twice the total number of minutes she ran in Week 1.

G The total number of minutes Melissa ran each day decreased from Week 1 to Week 2.

H The total number of minutes Melissa ran in Week 3 is more than the total number of minutes she ran in Weeks 1 and 2 combined.

J The total number of minutes Melissa ran each week increased by about 5 minutes per week.

---

7 Which arithmetic sequence is represented by the expression $3n + 1$, where n represents the position of a term in the sequence?

A 3, 6, 9, 12, 15, . . .

B 3, 4, 5, 6, 7, . . .

C 4, 5, 6, 7, 8, . . .

D 4, 7, 10, 13, 16, . . .

GO ON

8 The list below shows the number of minutes Addison spent reading on each of six days.

90, 60, 89, 94, 60, 93

Which two measures of these data best describe the typical number of minutes Addison spent reading each day?

F Mean and mode

G Mean and median

H Mode and range

J Median and range

---

9 Of the 250 sheep in a flock, 34% are white. What is the total number of white sheep in the flock?

A 85

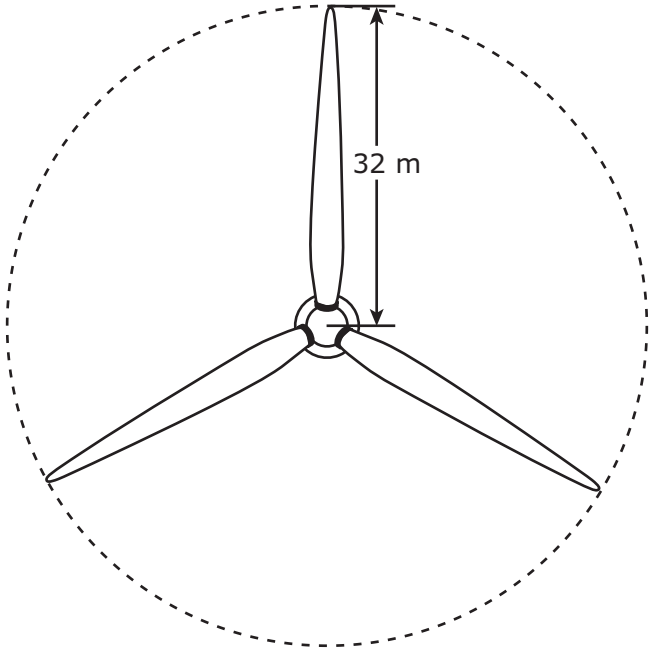
B 216

C 165

D Not here

GO ON

10 The diagram below models the length from the center of a wind turbine to the tip of one of its blades.



Which of these is closest to the total area covered by the blade when the turbine makes 1 revolution?

F 3,215 m^2

G 100 m^2

H 1,024 m^2

J 201 m^2

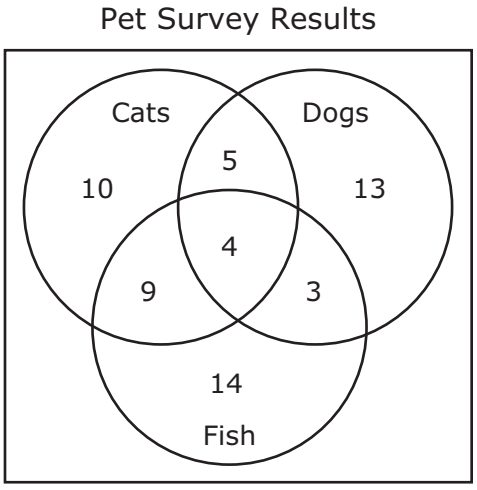
GO ON

11 Isaac surveyed his classmates to find out what types of pets they had. The pet survey results are listed below.

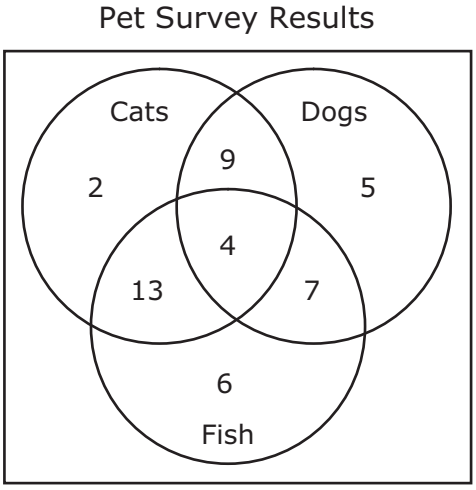
- A total of 25 students had dogs.
- A total of 28 students had cats.
- A total of 30 students had fish.
- There were 9 students who had only dogs and cats.
- There were 13 students who had only cats and fish.
- There were 7 students who had only dogs and fish.
- There were 4 students who had dogs, cats, and fish.

Which Venn diagram best represents the pet survey results?

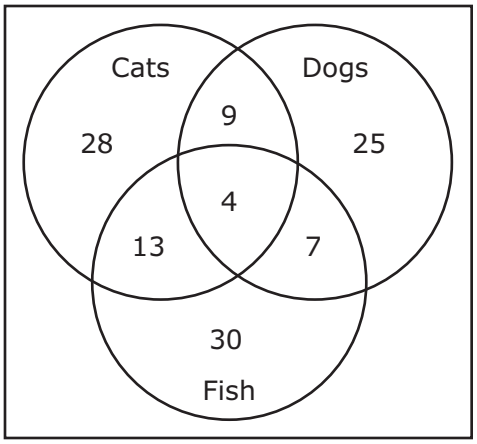
A



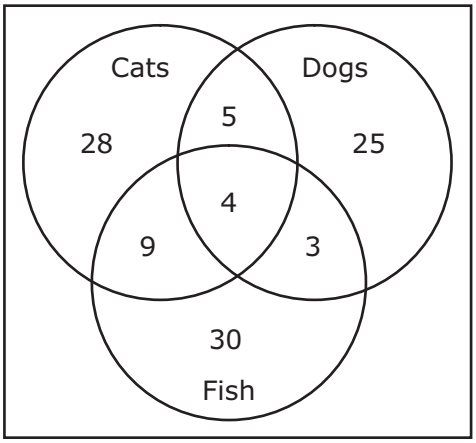
C



B

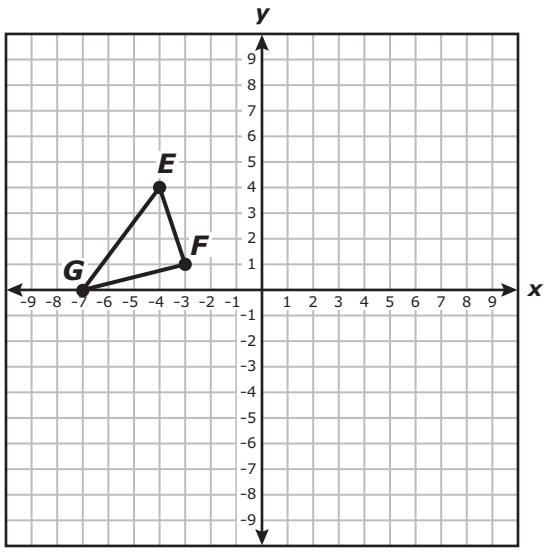


D



GO ON

12 Triangle *EFG* is shown on the grid below.



If triangle *EFG* is reflected across the *y*-axis to form triangle *E'F'G'*, which ordered pair represents the coordinates of *F'*?

F $(3, -1)$

G $(3, 1)$

H $(-3, -1)$

J $(1, -3)$

GO ON

13 A recipe for a dessert requires 3 cups of strawberries for every $1\frac{1}{2}$ cups of yogurt used. At this rate, how much yogurt should be used if 2 cups of strawberries are used?

A 1 c

B 9 c

C $\frac{3}{4}$ c

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

---

14 Graysen has a green number cube and a white number cube. The faces of the cubes are numbered 1 through 6. Graysen will roll each cube one time. What is the probability that the green cube will land with an even number faceup and the white cube will land with a number greater than 2 faceup?

F $\frac{1}{9}$

G $\frac{1}{36}$

H $\frac{1}{3}$

J $\frac{1}{6}$

GO ON

15 Ashton needs a total of $1.50 in quarters for a coin-operated car wash. He already has $0.75. Which equation can be used to find q, the number of additional quarters Ashton needs in order to have enough money for the car wash?

A $1.5 = 0.75q + 0.25$

B $0.75 = 1.5q + 0.25$

C $0.75 = 0.25q + 1.5$

D $1.5 = 0.25q + 0.75$

---

16 Mr. Stein is purchasing 2.25 pounds of meat that costs $2.80 per pound. How much change should Mr. Stein receive if he gives the cashier $20.00?

F $6.30

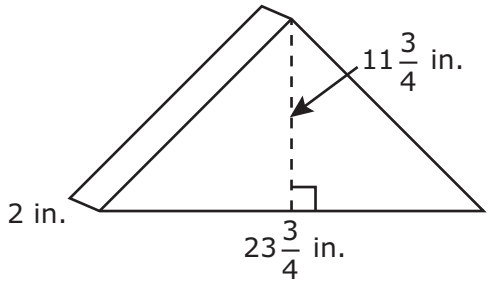
G $13.70

H $14.95

J $2.52

GO ON

17 The triangular prism shown below represents a display case.



Which of the following is the best estimate of the volume of the display case in cubic inches?

A 144 $in.^3$

B 576 $in.^3$

C 288 $in.^3$

D 72 $in.^3$

---

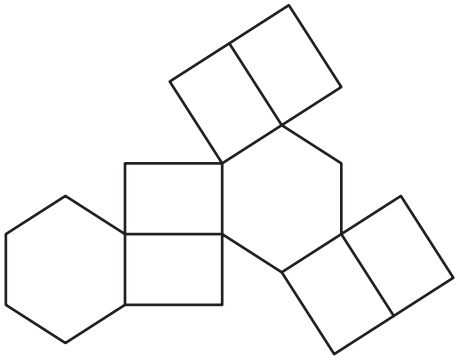
18 A sports drink contains 8% fruit juice. How is this percent written as a decimal?

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

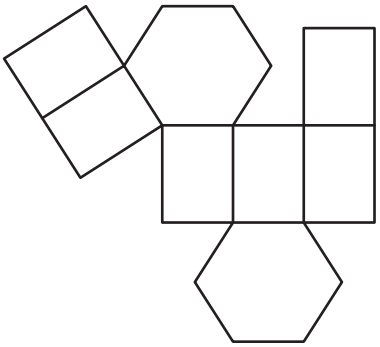
GO ON

19 Which net can be folded to form a hexagonal prism?

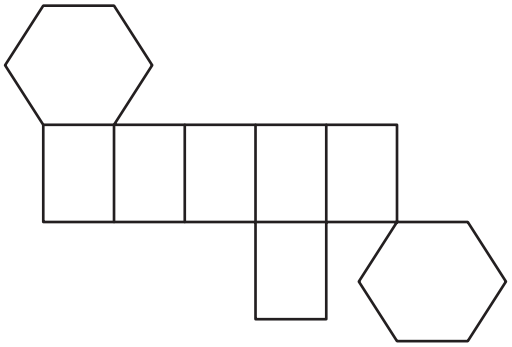
A



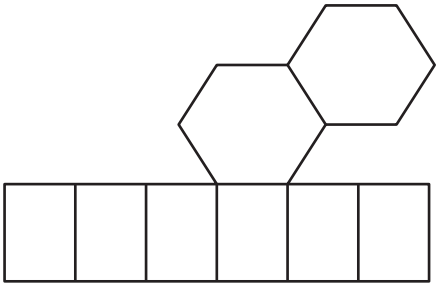
C



B



D



---

20 A total of 40 people made cakes for a bake sale. Each person made 3 cakes. Mrs. Sánchez found that 15% of these cakes were chocolate. How many chocolate cakes were made for the bake sale?

F 120

G 6

H 18

J Not here

GO ON

21 The list below shows Wendy's bowling scores in her last five games.

112, 123, 136, 145, 159

Which measure of data best describes how much these bowling scores varied?

A Mean

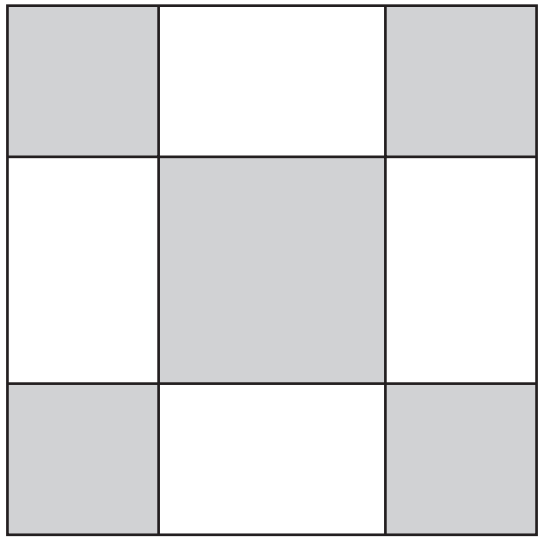
B Median

C Mode

D Range

GO ON

22 Use the ruler provided to measure the dimensions of the figure below to the nearest centimeter.



Which of the following is closest to the area of the shaded rectangles of the figure?

F 25 cm^2

G 49 cm^2

H 16 cm^2

J 24 cm^2

---

23 What is the value of the expression shown below?

$$12 + 96 \div 3 \cdot 2^3$$

A 288

B 204

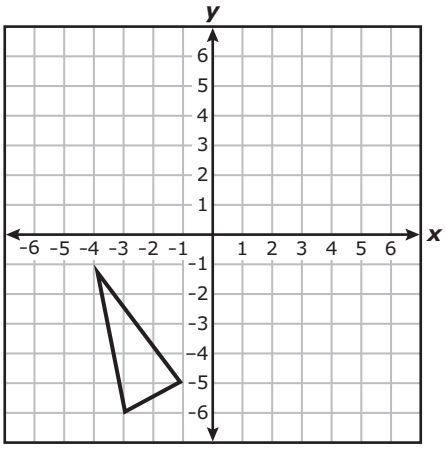
C 268

D 216

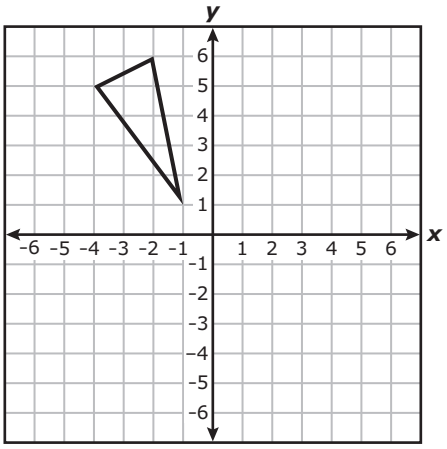
GO ON

24 The vertices of a triangle are $(-1, 5)$, $(-4, 1)$, and $(-3, 6)$. Which grid represents the result of reflecting the triangle across the *x*-axis?

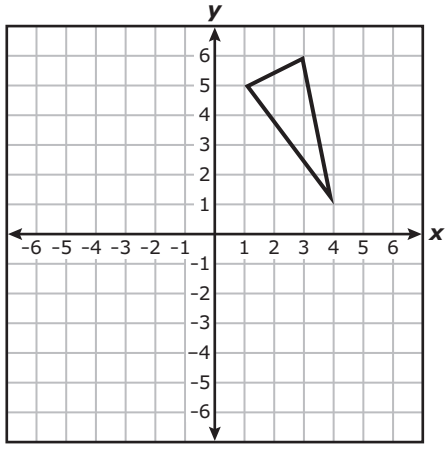
F



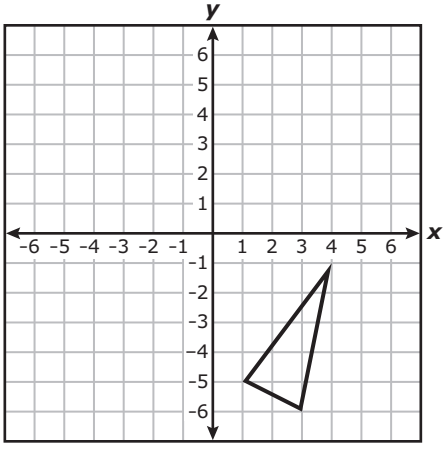
H



G



J



GO ON

25 Mr. Atkinson has $5\frac{1}{4}$ lb of dry fish food. He will put an equal amount of food into 3 containers. How much fish food will be in each container?

A $1\frac{2}{3}$ lb

B $1\frac{3}{4}$ lb

C $2\frac{1}{4}$ lb

D $8\frac{3}{4}$ lb

GO ON

26 Which list of numbers is in order from greatest to least?

F $-5,\ 0,\ \frac{1}{4},\ 2,\ \frac{7}{3},\ 6$

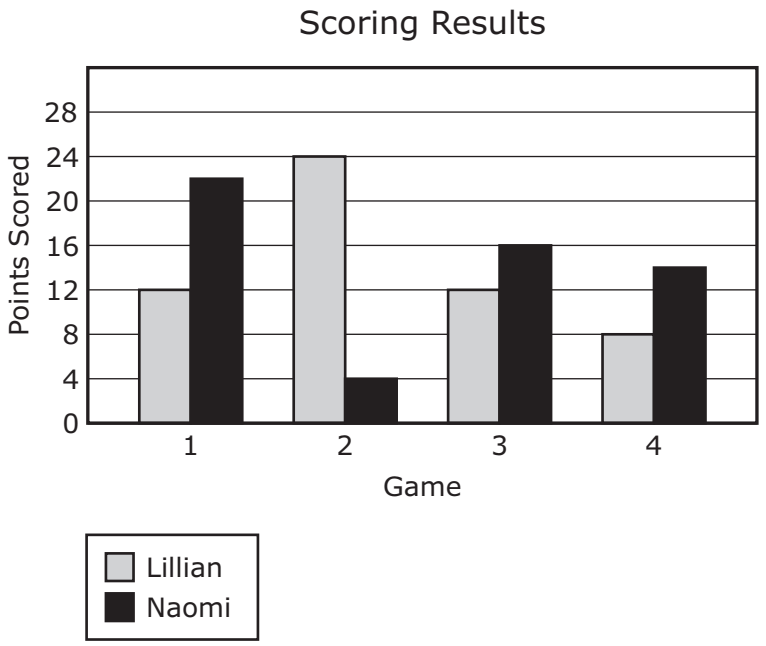
G $6,\ -5,\ \frac{7}{3},\ 2,\ \frac{1}{4},\ 0$

H $\frac{7}{3},\ 6,\ 2,\ \frac{1}{4},\ 0,\ -5$

J $6,\ \frac{7}{3},\ 2,\ \frac{1}{4},\ 0,\ -5$

GO ON

27 The number of points scored by Lillian and Naomi during four basketball games is shown in the graph below.



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

A In Game 1 the number of points scored by Lillian was more than half the number of points scored by Naomi.

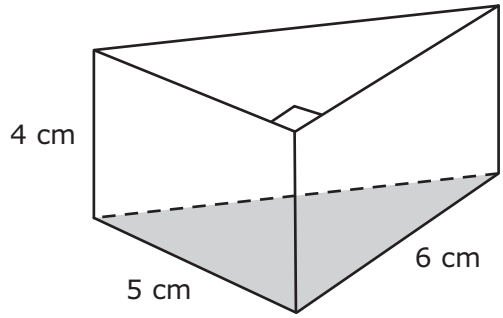
B The total number of points scored by Lillian and Naomi in Game 4 was more than the number of points scored by Lillian in Game 2.

C In Game 4 the number of points scored by Naomi was two times the number of points scored by Lillian.

D The total number of points scored by Lillian and Naomi in Game 3 was seven times the number of points scored by Lillian in Game 2.

GO ON

28 Evelyn cut a wedge of cheese into the shape of a triangular prism like the one shown below. The shaded part represents one of the bases of the prism.



A formula for the volume of a triangular prism is $V = Bh$. Which equation can be used to find B, the area of the shaded base in square centimeters?

F $B = 5(6)$

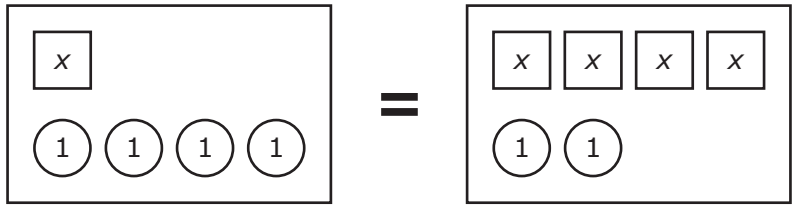
G $B = \frac{5(6)}{2}$

H $B = 4(5)$

J $B = \frac{4(5)}{2}$

GO ON

29 The model below represents the equation $x + 4 = 4x + 2$.



What value of x makes the equation true?

A $\frac{2}{3}$

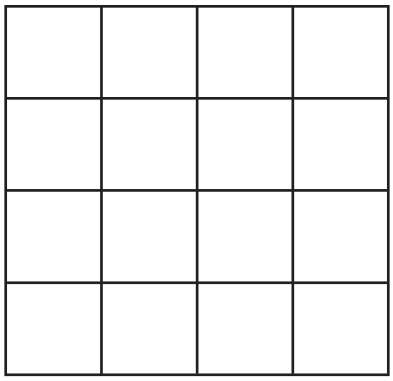
B 2

C $\frac{6}{5}$

D 4

GO ON

30 The model below has an area of 16 square units.



Which expression represents the side length of the model in units?

F $\sqrt{64}$

G $\sqrt{4}$

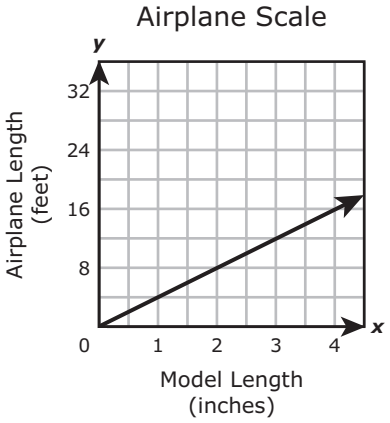
H $\sqrt{16}$

J $\sqrt{8}$

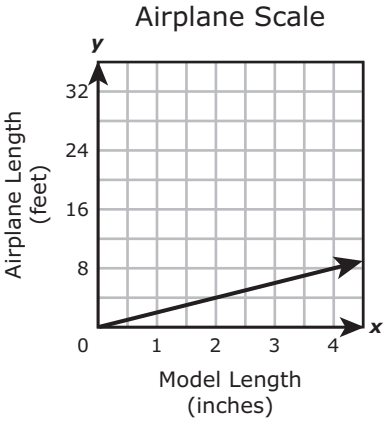
GO ON

31 Miranda made a model airplane using a scale in which 0.25 inch represents 2 feet. Which graph shows this relationship?

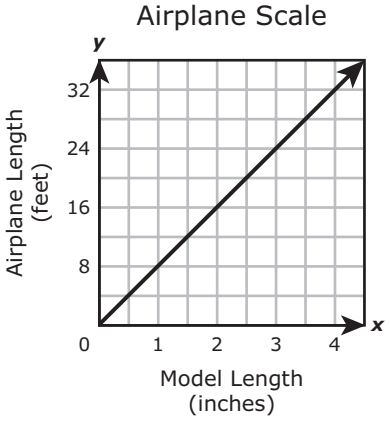
A



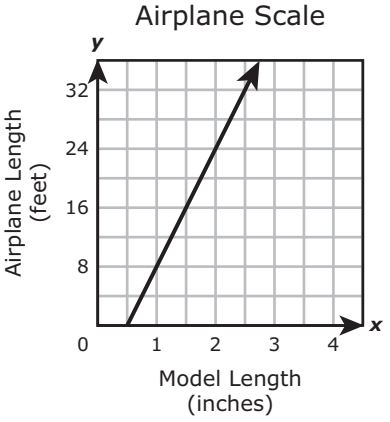
C



B



D



GO ON

32 The table below shows the number of cotton bales imported by the United States from different countries and regions in one year.

Cotton Imports

Country or Region	Bales (thousands)
Egypt	450
Hong Kong	475
India	1,250
Italy	1,100
Japan	925
Mexico	1,750
Taiwan	1,050

What is the mean number of cotton bales imported from these countries, in thousands?

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

---

33 Mr. Grant spent $8.40 to place an ad in the newspaper. This price included a one-time fee of $6.00 plus $0.08 per word. Which method can be used to determine the total number of words in the ad Mr. Grant placed?

A $(8.4 \times 6) \div 0.08$

B $(8.4 - 6) \div 0.08$

C $(8.4 + 6) \div 0.08$

D $(8.4 \div 0.08) + 6$

GO ON

34 Karla will select 2 different side dishes from the following list at a restaurant.

- French fries
- Salad
- Onion rings
- Beans

Which list shows all the possible outcomes of 2 different side dishes from this list?

F French fries and salad
Onion rings and beans

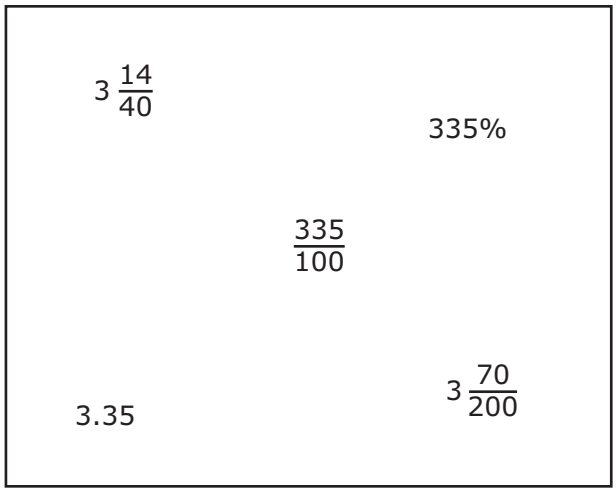
G French fries and salad
French fries and onion rings
Salad and beans
Salad and onion rings
Onion rings and beans

H French fries and salad
French fries and onion rings
French fries and beans
Salad and onion rings
Salad and beans
Onion rings and beans

J French fries and salad
French fries and onion rings
Salad and onion rings
Salad and beans

GO ON

35 The box below contains equivalent values.



Which number is equivalent to the values in the box?

A $\frac{67}{20}$

B 3.35%

C $6\frac{7}{20}$

D 335

GO ON

36 Simon is filling a cylindrical water dispenser that has a radius of 7 inches and a height of 20 inches. Which of these is the best estimate of the volume of this water dispenser?

F 140 $in.^3$

G 2,940 $in.^3$

H 840 $in.^3$

J 11,760 $in.^3$

---

37 Scott was $63\frac{3}{8}$ inches tall when he started seventh grade and $65\frac{1}{4}$ inches tall when he started eighth grade. How many inches did he grow during this time?

A $2\frac{5}{8}$ in.

B $1\frac{3}{4}$ in.

C $2\frac{1}{2}$ in.

D $1\frac{7}{8}$ in.

GO ON

38 At a concession stand 6 hot dogs cost $6.72. At this rate, how much would 8 hot dogs cost, in dollars and cents?

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

---

39 The following list shows the names of three figures that have a common characteristic.

Rectangular prism, hexagonal pyramid, cube

Which statement describes the characteristic that the figures have in common?

A Each figure has exactly 12 edges.

B Each figure has at least one rectangular face.

C Each figure has an even number of vertices.

D Each figure has 4 more edges than vertices.

GO ON

40 Carrie missed 9.6% of the problems on a test. The test had a total of 125 problems. Which of the following is the best estimate of the number of problems Carrie missed?

F 123

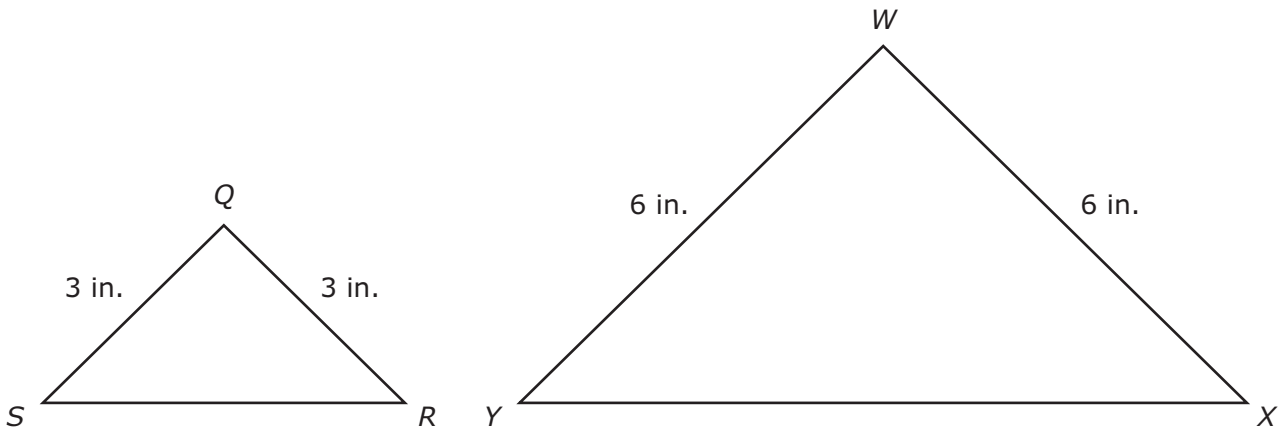
G 13

H 2

J 113

---

41 Triangle *QRS* and triangle *WXY* are similar.



Which statement must be true?

A $\overline{YX}$ is 6 inches long.

B $m\angle S + m\angle R + m\angle Y = 180$

C $m\angle S + m\angle R = m\angle Y + m\angle X$

D $\overline{SR}$ is twice as long as $\overline{YX}$.

GO ON

42 Use the ruler provided to measure the diameter of the coin shown below to the nearest tenth of a centimeter.

Which of these is closest to the circumference of the coin?

F 7.5 cm

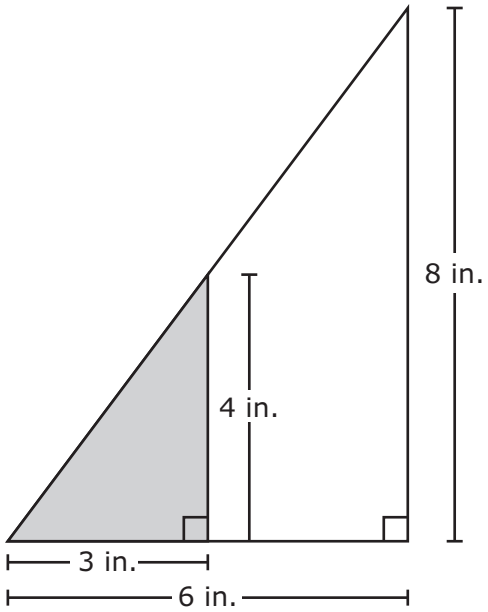
G 4.5 cm

H 9.4 cm

J 3.1 cm

GO ON

43 Robert drew the figure shown below.



Which equation can be used to determine A, the area of the unshaded part of the figure in square inches?

A $A = \frac{1}{2}(6 \times 8) + (3 \times 4)$

B $A = \frac{1}{2}(6 \times 8) + \frac{1}{2}(3 \times 4)$

C $A = \frac{1}{2}(6 \times 8) - \frac{1}{2}(3 \times 4)$

D $A = \frac{1}{2}(6 \times 8) - (3 \times 4)$

GO ON

44 The measure of $\angle W$ is 37°. What is the measure, in degrees, of the angle that is complementary to $\angle W$?

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

---

45 The 5 members of the math team at Nielsen Middle School are raising money to go to the state competition. They need between $55 and $80 per person for each day of the trip. Which of the following is a reasonable estimate of the total amount of money they will need for the 2-day trip?

A $275

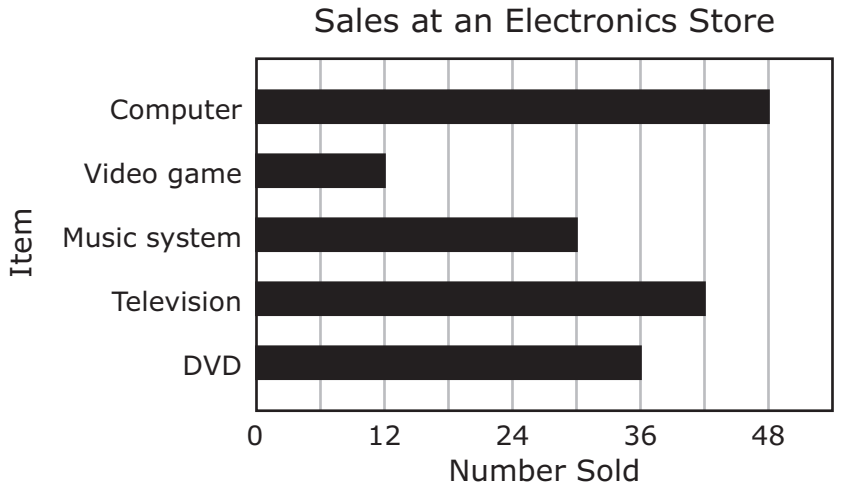
B $400

C $700

D $900

GO ON

46 The graph below shows the number of items sold at an electronics store one weekend.



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

F The number of video games sold was $\frac{1}{3}$ of the number of computers sold.

G The number of music systems sold was 36 more than the number of video games sold.

H The number of televisions sold was 12 more than the number of DVDs sold.

J The number of televisions sold was $\frac{1}{4}$ of the total number of items sold.

GO ON

47 Which situation is best represented by the equation $3x = 288$?

A Ms. Jones makes 3 equal stacks of cafeteria trays. There are 288 trays in all. What is x, the number of trays in each stack?

B Ms. Jones makes 3 stacks, each with 288 cafeteria trays. What is x, the number of trays in all?

C Ms. Jones stacks 3 cafeteria trays. There are 288 more trays to stack. What is x, the number of trays in all?

D Ms. Jones has to stack 288 cafeteria trays in all. She has 3 trays left to stack. What is x, the number of trays Ms. Jones has already stacked?

---

48 Which two values are both equivalent to 240%?

F 2.4 and $2\frac{2}{25}$

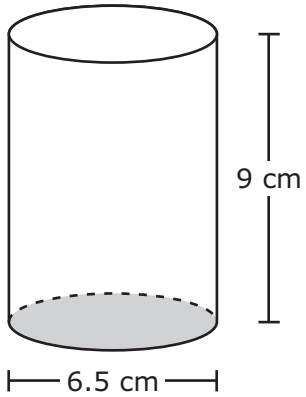
G 2.4 and $2\frac{2}{5}$

H 0.24 and $2\frac{2}{5}$

J 0.24 and $2\frac{2}{25}$

GO ON

49 The cylindrical toothbrush holder modeled below has a diameter of 6.5 centimeters and a height of 9 centimeters. The shaded part represents the base of the cylinder.



A formula for finding the volume of a cylinder is $V = Bh$. Which equation can be used to find B, the area of this cylinder's base in square centimeters?

A $B = \pi\left(\frac{6.5}{2}\right)^2$

B $B = \pi\left(\frac{6.5}{2}\right)$

C $B = \pi(6.5)^2$

D $B = \pi(6.5)$

GO ON

50 Monica recorded the high temperature each day for one week. She will report the most common high temperature during that week to her class. Which measure of data should Monica report?

F Mode, because the mode of a data set is always the greatest value

G Median, because the median of a data set is always the middle value

H Mode, because the mode of a data set is always the value that appears the greatest number of times

J Median, because the median of a data set is always the value that appears most often

---

51 Mr. Jenkins spent $73 on two colors of paint. The price of each color of paint is shown below.

Prices for Paint

Color	Price per Quart
Foothills Gray	$7
Oceanside Blue	$13

Mr. Jenkins bought 3 quarts of Foothills Gray. How many quarts of Oceanside Blue did he buy?

A 11, because $73 \div (13 + 7) \times 3$ is about 11

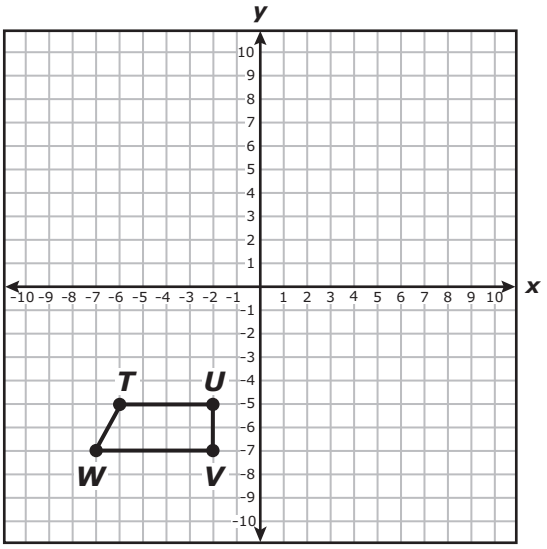
B 13, because $73 \div (13 \times 3) \times 7$ is about 13

C 16, because $(73 + 3 \times 13) \div 7 = 16$

D 4, because $(73 - 3 \times 7) \div 13 = 4$

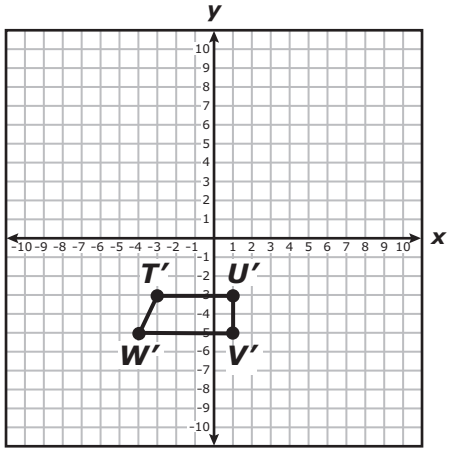
GO ON

52 Figure *TUVW* is shown on the grid below.

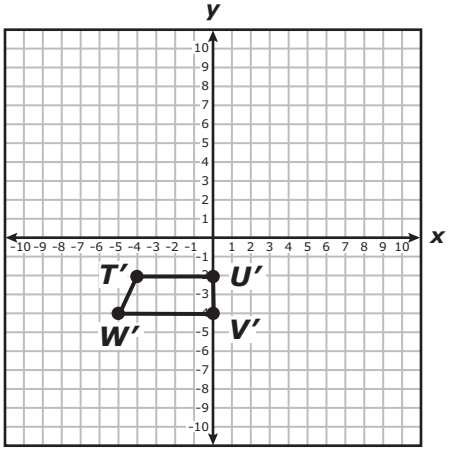


Which of the following shows the figure *TUVW* translated 3 units up and 2 units to the right to form the image *T′U′V′W′*?

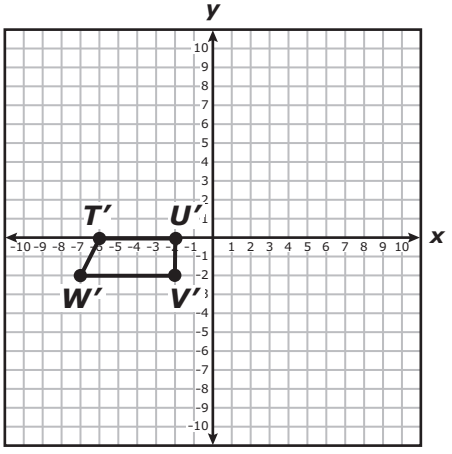
F



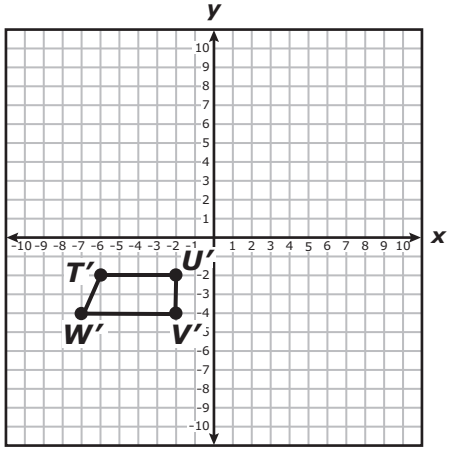
H



G



J



GO ON

53 One-half gallon is equivalent to 4 pints. How many gallons are the equivalent of 72 pints?

A 64 gal

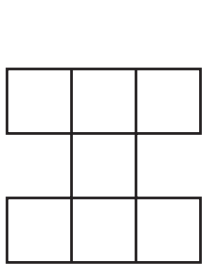
B 9 gal

C 80 gal

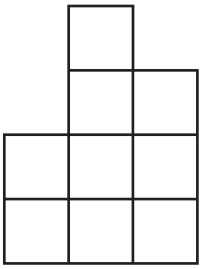
D 576 gal

GO ON

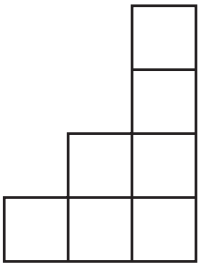
54 The top, front, and right-side views of a three-dimensional figure made of identical cubes are shown below.



Top view



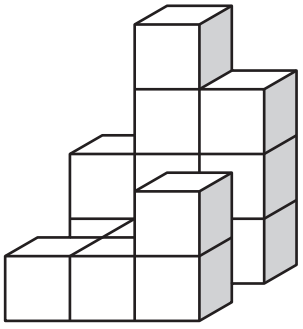
Front view



Right-side view

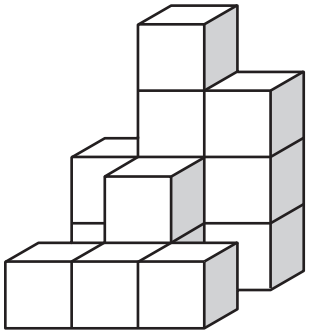
Which three-dimensional figure is represented by these views?

F



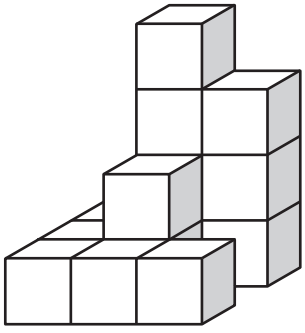
Front

H



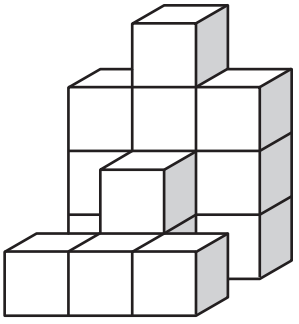
Front

G



Front

J



Front

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

STOP

STAAR
GRADE 7
Mathematics
April 2013

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