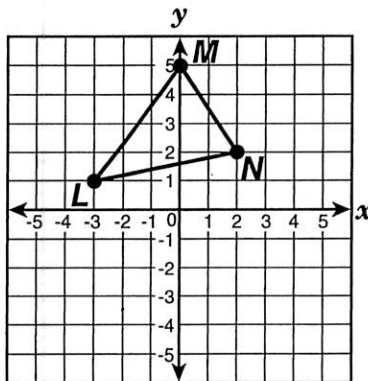1   Bella spent $3.60 on 18 tokens for rides at the carnival. Each ride requires 1 token. If Bella went on a ride 7 times, which equation could be used to find r, the amount in dollars she spent on the ride?

A $r = (3.60 \div 18)(7)$

B $r = (3.60 \div 18) \div 7$

C $r = 3.60(18)(7)$

D $r = 3.60 \div (18 - 7)$

2   Jason drew a triangle with vertices L, M, and N on a grid to represent a holding area for captured players in a game of Capture the Flag.
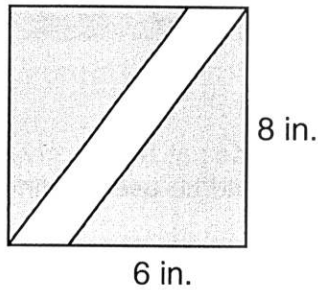

Which point is NOT located inside the holding area?

F $(4, 0)$

G $(-1, 3)$

H $(-2, 2)$

J $(0, 3)$

GO ON

55 Lila sews ribbon onto cloth squares to create pillows with geometric designs.

8 in.

6 in.

How many inches of blue ribbon will she need to frame both triangular sections in the design?

A 24 in.

B 20 in.

C 48 in.

D 10 in.

---

56 Ross studies the process of cooling by putting a pot of boiling water into a refrigerator. A thermometer in the water sends temperature data to his computer at the end of each minute. The table below shows the initial set of temperature values.

Boiling Water Cool Down

| Minutes	Water Temperature (°F)
0	212
1	205
2	197
3	191
4	184
5	178

What is the approximate temperature of the water after $2\frac{1}{2}$ minutes?

F 187°F

G 191°F

H 200°F

J 196°F

3 A laser printer prints 16 black-and-white pages in 30 seconds. Which of the following is an equivalent rate?

   A 4 pages in 120 seconds

   B 10 pages in 24 seconds

   C 20 pages in 34 seconds

   D 8 pages in 15 seconds

---

4 The net of a cylinder is shown below.

14 cm

10 cm
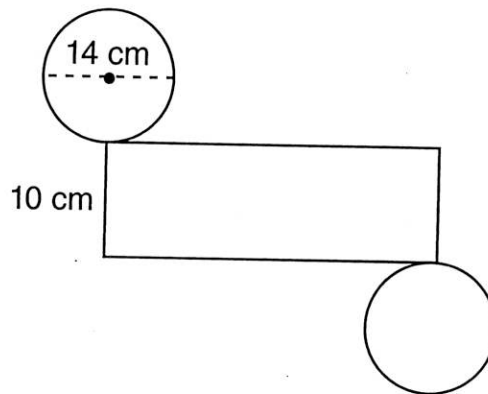
Which is closest to the total surface area of the cylinder?

   F 528 cm²

   G 597 cm²

   H 747 cm²

   J 615 cm²

---

5 The Ropp Family Orchard has 143 peach trees and 78 apple trees. If a larger orchard is planning to have 10 apple trees and use the same ratio of peach trees to apple trees, how many peach trees will be planted?

   A 198

   B 173

   C 167

   D 203

GO ON

6 The table below shows the Madison school district enrollment for the last several years.

Madison Enrollment

Year	Students Enrolled
2005	2,325
2006	2,480
2007	2,544
2008	2,701
2009	2,858
2010	3,014

Based on these data, which of the following is the most reasonable conclusion?

F The number of students enrolled stayed about the same each year.

G The district should expect an increase of more than 400 students in the enrollment figures for 2012.

H The district should expect about 3,170 students enrolled during the 2011 school year.

J The district should expect fewer than 2,000 students enrolled during the year 2014.

7 The table below shows the lunch account balance of four teachers.

Lunch Accounts

Teacher	Balance ($)
Mr. Wilson	−9.48
Mr. Beckett	−13.14
Mrs. March	12.79
Ms. Purla	5.77

Mrs. Cady owes $12.54. Who owes more than Mrs. Cady?

A Mr. Wilson

B Mr. Beckett

C Mrs. March

D Ms. Purla

GO ON

8 The expression $\frac{n+3}{2}$ can generate a sequence for $n = 1, 2, 3, \ldots$ Which sequence of numbers is described by this expression?
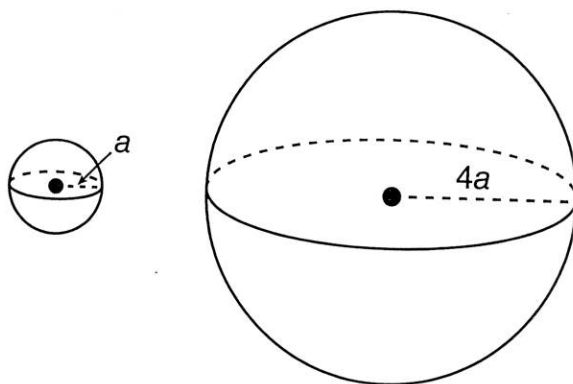
F $1\frac{1}{2}, 2, 2\frac{1}{2}, 3, 3\frac{1}{2}, \ldots$

G $2\frac{1}{2}, 3\frac{1}{2}, 4\frac{1}{2}, 5\frac{1}{2}, 6\frac{1}{2}, \ldots$

H $2, 2\frac{1}{2}, 3, 3\frac{1}{2}, 4, \ldots$

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

**9** The radius of a sphere is quadrupled, as shown in the figures below.

The volume of the smaller sphere is 10 cubic meters. Find the volume of the larger sphere in cubic meters.

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

GO ON

Practice Test 2

10 Callie is enlarging a photograph by a scale factor of 6. If a line segment in the original photo is 5.5 millimeters long, what will be the length of the corresponding segment in the enlarged photo?

F 30.5 mm

G 33 mm

H 11.5 mm

J 10.9 mm

11 Olivia created the two spinners shown below.
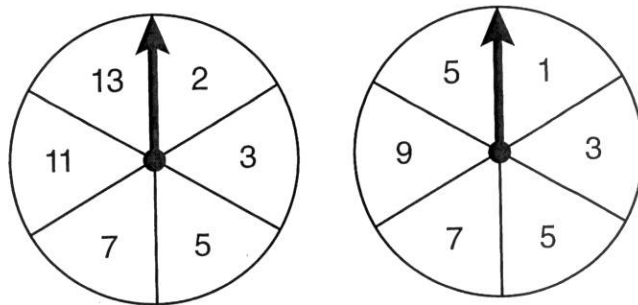
What is the probability of spinning a 5 on both spinners?

A $\frac{1}{9}$

B $\frac{1}{18}$

C $\frac{1}{4}$

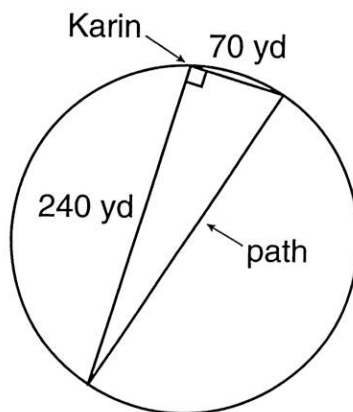D $\frac{1}{2}$

12 Which expression is greater than 5.5?

F $\dfrac{60}{11}$

G 4.98

H $\sqrt{30}$

J $5\dfrac{3}{7}$

---

13 Karin is running on a trail around a circular park. The park has a path that cuts through its center, as shown below.

At her current location, her straight-line distance from the two ends of the path are 70 yards and 240 yards. What is the length of the path across the park?
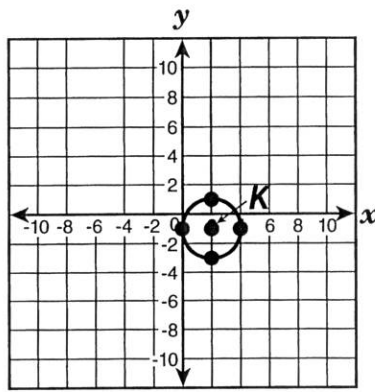
A 260 yd

B 170 yd

C 310 yd

D 250 yd

14 Karla sells boxed lunches. If Karla buys the raw materials for lunches at $6.80 each and sells the finished, cooked lunch for $8.50 each, what percent profit does Karla earn on each meal?

  F   17%

  G   20%

  H   25%

  J   12.5%

**15** Circle *K* is shown on the coordinate grid below.

Which ordered pair best represents the center of circle *K* after it is translated 3 units left and 4 units up?

  A $(3, -1)$

  B $(5, 2)$

  C $(-2, 2)$

  D $(-1, 3)$

---

16 Judson, a self-employed landscaper, uses an accountant to prepare his taxes. He has to pay a $60 preparation fee and $2.75 per tax form. The accountant filed 5 forms for Judson. Which equation can be used to determine *p*, the amount Judson owes the accountant?

  F $p = 60 + 2.75 + 5$

  G $p = 60 + 2.75(5)$

  H $p = 60 - 2.75(5)$

  J $p = 60 \div 2.75 \times 5$

GO ON

17 A cylindrical manicotti pasta shell has a radius of 1 inch and length of 6 inches, as shown below.


1 in.

6 in.
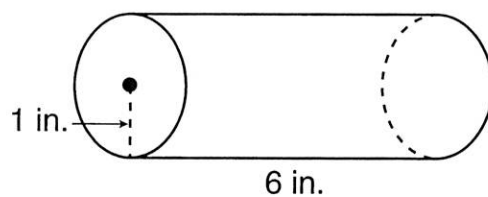
What is the approximate lateral area of the shell?

A 19 in.^{2}

B 75 in.^{2}

C 38 in.^{2}

D 44 in.^{2}

---

18 Brady received the following scores for solos at his last 8 vocal contests: 42, 41, 50, 48, 37, 48, 39, and 47. Which measure should Brady use to make his scores appear consistently high?

F Range

G Mean

H Median

J Mode

GO ON

19 Gwen was assigned a square plot in the backyard garden to plant 81 flowers. She decided to include three colors in the design shown below.
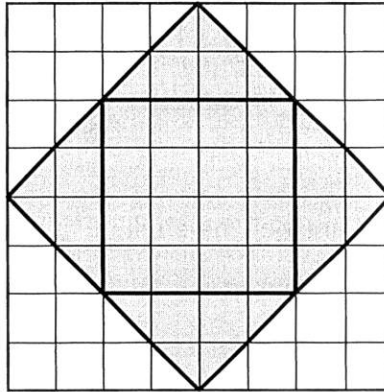
Gwen will use red flowers in the corner triangles, 36 blue flowers in all for the shaded inner triangles, and 9 white flowers in the shaded inside square. If she plants the same number of flowers in each corner triangle, how many red flowers will Gwen plant in each corner triangle?

A 40

B 10

C 9

D 36

---

20 Alayna helps feed the toddlers at snack time at a day care center. Each toddler is given $\frac{1}{2}$ cup of cereal. The equation below can be used to find c, the number of cups of cereal needed for a given number of toddlers, t.
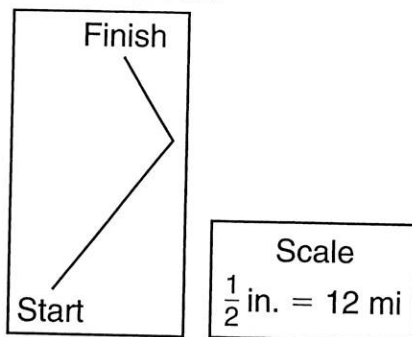
$$c = 0.5t$$

How many cups of cereal does Alayna need to get from the box if there are 17 toddlers?

F 8 cups

G 9 cups

H 34 cups

J 8.5 cups

21 Dominic rides his bike at an average speed of 9 miles per hour. He plans on biking the trail shown on the map below.

Wilson Bike Trail

Finish

Start

Scale
$\frac{1}{2}$ in. = 12 mi

Use the ruler on the Mathematics Chart to measure the length of the trail from start to finish. How many hours should Dominic estimate it will take him to finish the trail?

A $1\frac{1}{2}$ hours

B 2 hours

C 3 hours

D 4 hours

22 Ethan traded in his SUV to purchase an $18,400 car with better fuel efficiency. The SUV traded in for $8,700, and Ethan took out a loan with 5.4% interest to cover the remaining total. What is Ethan's monthly car payment, to the nearest cent, if the loan is paid off in 48 months?

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

GO ON

23 Rectangle *QRST* is similar to rectangle *WXYZ*.
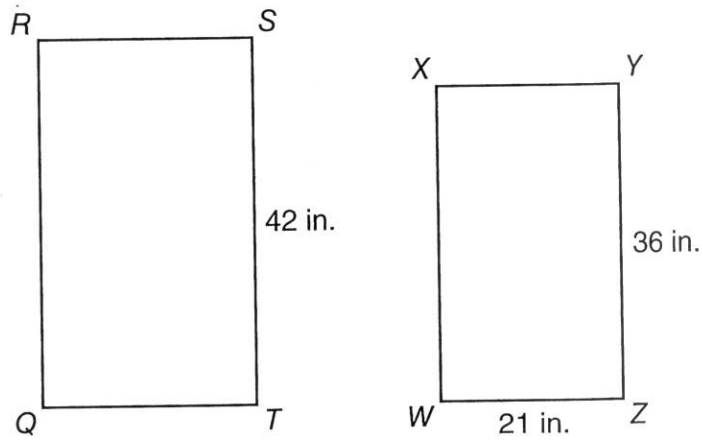
What is the length of $\overline{RS}$?

A 27 in.

B 18 in.

C 24.5 in.

D 21.5 in.

---

24 Which table best represents the equation $y = \frac{2}{3}x - 2$?

F

x	y
−2	−1
0	2
4	8

H

x	y
−3	0
0	2
6	6

G

x	y
−4	−8
2	1
6	7

J

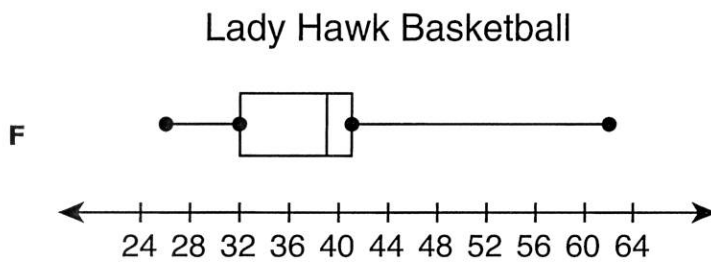| x	y
−6	−6
0	−2
3	0

GO ON

25 Lily wants to donate her hair to an organization that provides wigs for people in need. Donated hair must be at least 10 inches long. Her hair grows between 0.37 and 0.71 inches a month. If Lily could now cut 5 inches from her hair, which of the following best describes how many months it will take before her hair is long enough to make a donation?

A Between 7 and 17 months

B Less than 7 months

C Between 15 and 21 months

D More than 21 months

---

26 The list below shows the points scored by the Lady Hawk basketball team during the 2011 season.

$$62, 52, 41, 35, 30, 38, 40, 34, 41, 39, 29, 26$$

Which graph best represents the 2011 basketball scores?

Lady Hawk Basketball

F

24 28 32 36 40 44 48 52 56 60 64

Lady Hawk Basketball

H

2	6 9
3	0 4 5 9
4	0 1
5	2
6	2

Lady Hawk Basketball

G

30   40   50   60

Scores

Lady Hawk Basketball

J

Frequency

20-29 30-39 40-49 50-59 60-69

Scores

GO ON

Practice Test 2
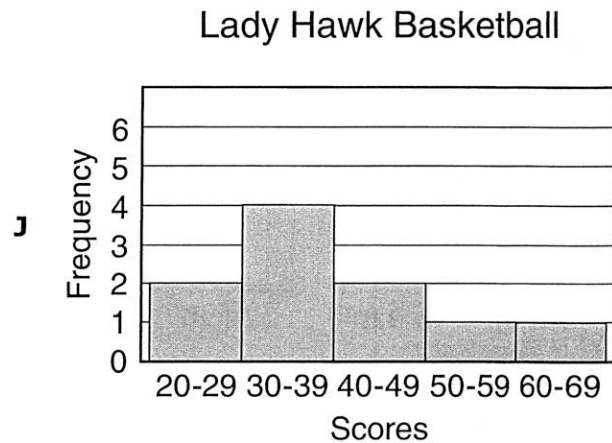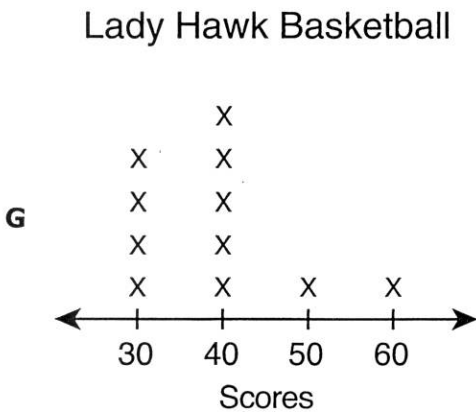
27 Mr. Pip makes balloon animals for parties. He makes 8 dogs for every 5 swords. If he made 104 dogs at a carnival, how many swords did he make?

A 85

B 65

C 101

D 90

---

28 Which set of figures can be rearranged to form a model that is a representation of the Pythagorean theorem?

F 3 in.   4 in.   5 in.

G
2 ft   4 ft   5 ft

H
6 cm   12 cm   24 cm

J
8 mm   15 mm   17 mm
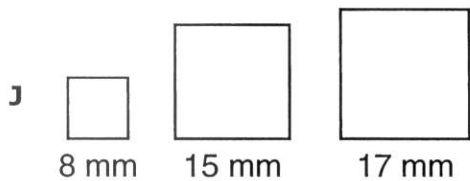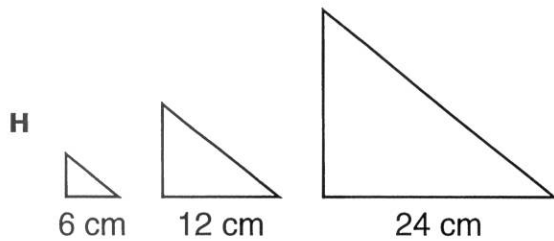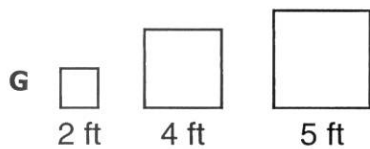
GO ON

29 The dimensions of an ice cream cone are shown below.
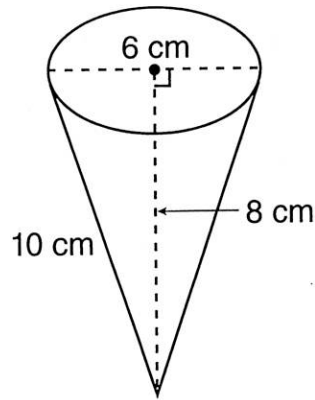
The volume of a cone can be found using the formula $V = \frac{Bh}{3}$. Which of the following can be used to find the volume of the ice cream cone?

A $V = \dfrac{(\pi)(6)(2)(8)}{3}$

B $V = \dfrac{(\pi)(3^2)(8)}{3}$

C $V = \dfrac{(\pi)(3)(2)(8)}{3}$

D $V = \dfrac{(\pi)(6^2)(8)}{3}$

---

30 Sarai, Lily, Jack, and Tristan are all reading the same book for an art project. Sarai has read 59% of the book and Lily has read $\frac{5}{8}$ of the book. Jack has read $\frac{4}{7}$ and Tristan has read 0.63 of the book. Which list orders the amounts read from least to greatest?

F $\frac{5}{8}$, 59% $\frac{4}{7}$, 63%

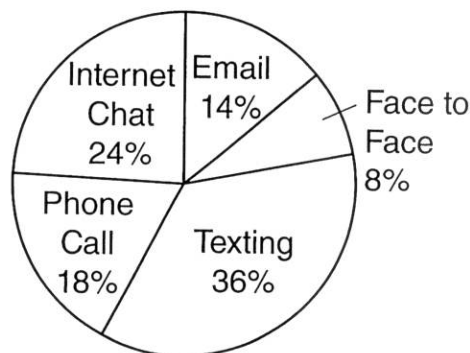**G** $\frac{4}{7}$, $\frac{5}{8}$, 59%, 63%

H 63%, $\frac{5}{8}$, 59%, $\frac{4}{7}$

J $\frac{4}{7}$, 59%, $\frac{5}{8}$, 63%

GO ON

**31** The circle graph below shows the preferred method of communication of students in the middle school.

Teen Communication

Internet Chat 24%
Email 14%
Face to Face 8%
Phone Call 18%
Texting 36%

Based on the data, which of the following is true?

A Half of students surveyed preferred talking on the phone or texting to communicate with others.

B 60% of students preferred communicating using texting or Internet chat methods.

C More than $\frac{1}{3}$ of students preferred communicating with a phone call or e-mail.

D Twice as many students prefer e-mail rather than face-to-face communication.

---

32 The layout of Trey's backyard is shown below.


24 ft

20 ft

House 25 ft
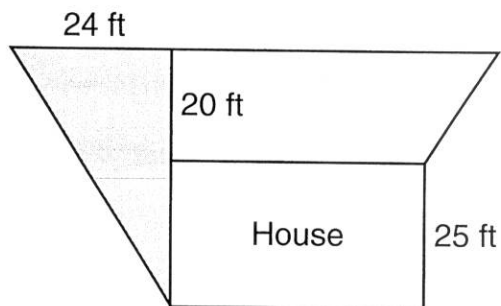
Trey plans to fence in the triangular section for a dog run. How many feet of fencing will he need if he uses the side of the house as part of the dog run?

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

GO ON

33 As a waiter, Will earns an average of 15% of the amount his customers spend in addition to a flat rate of $18 per shift. He can use the equation $m = 0.15p + 18$ to determine the amount in dollars, m, he will earn if his customers spend a total of p dollars during one shift. One night, Will's customers spent a total of $142. About how much did Will earn during the shift?

A $39.30

B $27.47

C $24.00

D $22.80

---

34 Triangle *HAT* was dilated to form triangle *CUP*.
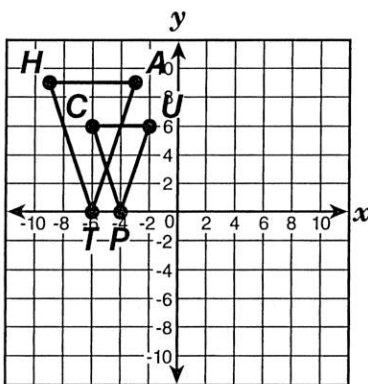
What scale factor was used for the dilation?

F $\frac{3}{2}$

G 2

H $\frac{1}{2}$

J $\frac{2}{3}$

GO ON

35 Triangle *ABC* is similar to triangle *XYZ*. If the perimeter of triangle *ABC* is 48 millimeters, what is the perimeter of triangle *XYZ*?
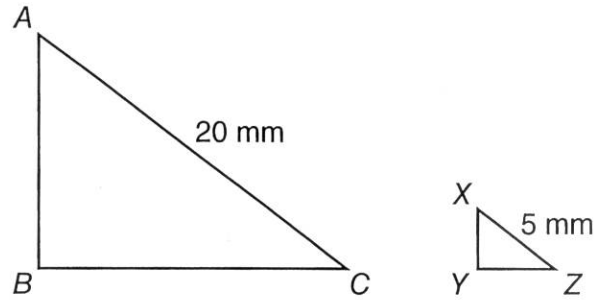

A 24 mm

B 33 mm

C 15 mm

D 12 mm

---

36 Mrs. Leslein set out two ice chests for a picnic lunch. One ice chest contains drinks: 8 chocolate milks, 7 white milks, and 5 juices. The other chest contains snacks: 12 packages of apples and caramel and 12 packages of vegetables and dip. If Tori decides to choose her drink and snack at random, what is the probability that she will choose a chocolate milk with vegetables and dip?

F $\frac{1}{5}$

G $\frac{2}{7}$

H $\frac{9}{10}$

J $\frac{5}{11}$

GO ON

37 Which graph best represents the relationship shown in the table below?

x	y
−3	4
−1	2
1	0
2	−1

A

B

C

D
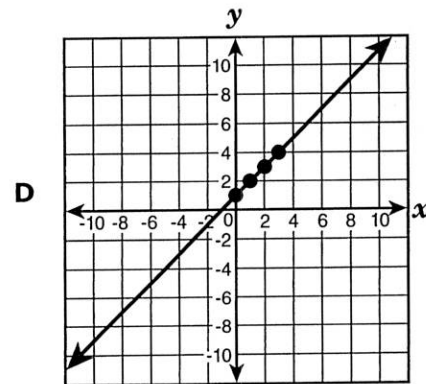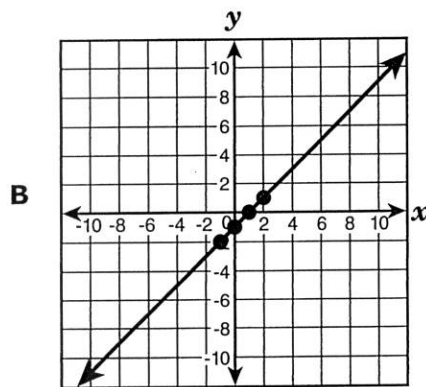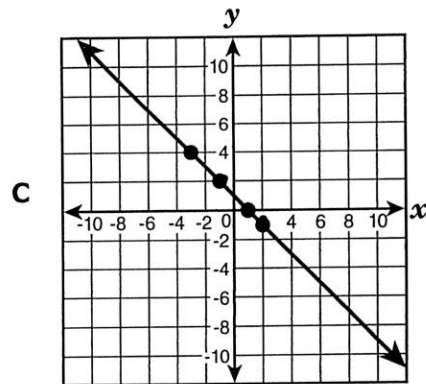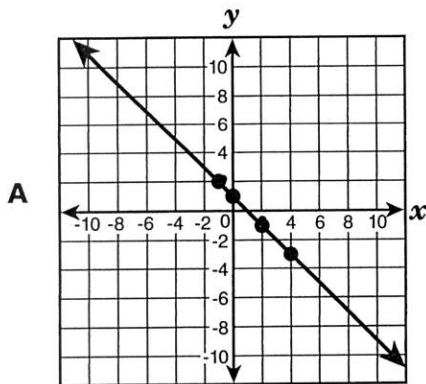
38 Which equation best represents the relationship described by the statement below?

"The value of y is the difference of 2 and the product of 3 and the value of x."
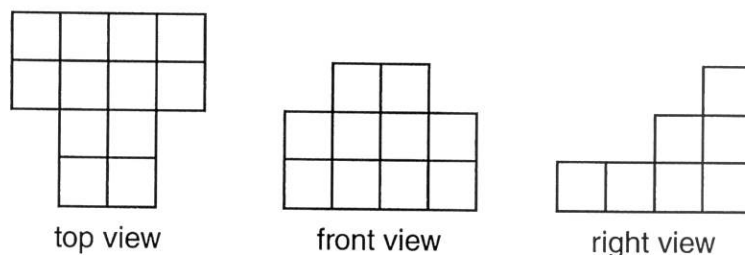
F $y = 2 - (3 \div x)$
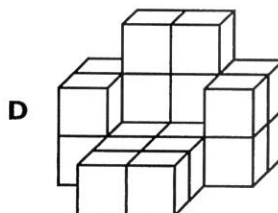
G $y = 2 - 3x$
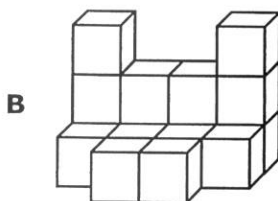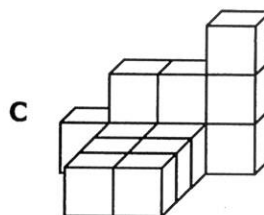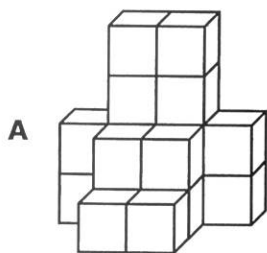
H $y = 2 \div (3 + x)$

J $y = 2 \div 3x$

GO ON ➤

39 Mr. Leebnick displayed the drawings below of the top, front, and right-side views of a figure to his math class.

top view   front view   right view

He instructed his students to create a solid figure that has those three views. Which three-dimensional figure has those views?

A

B

C

D

---

40 Of the 81 students in Mrs. Cady's classes, 36 ride the bus. Use these results to predict the approximate number of students who ride the bus out of the 450 students at Mrs. Cady's school.

F 362

G 181

H 200

J 405

GO ON

41 Polly purchased a laptop, shown in the figure below, with a 15-inch screen (measured along the diagonal) that fits snugly into a rectangular case with a 12-inch length when closed.

15 in.⟶   12 in.
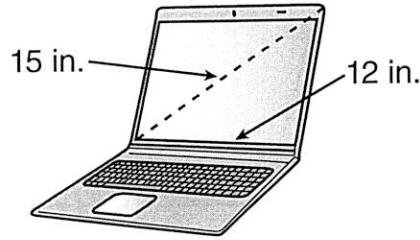
What is the width of the laptop case?

A 13 in.

B 9 in.

C 11 in.

D 18 in.

---

42 Lauren has a coupon for 25% off her total purchase for school clothes. Her total cost, c, after the coupon is applied to a total purchase, p, can be found using the equation $c = 0.75p$. If she uses the coupon to buy 3 pairs of jeans priced $27 each and 4 shirts priced $12 each, what will be her total cost?
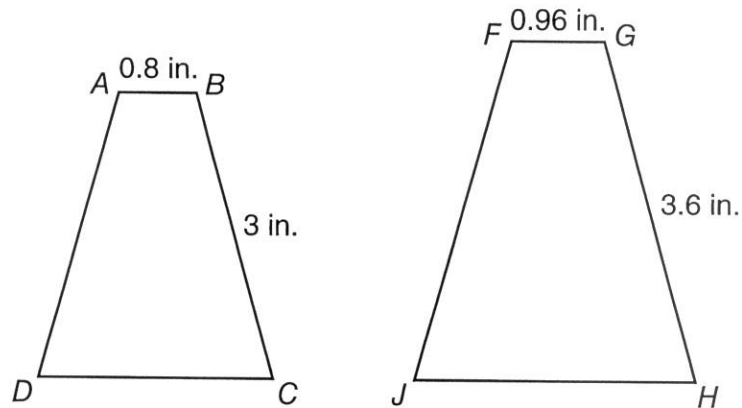
Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

---

43 Carl can sprint at a rate of 0.0045 miles per second. Which of the following represents this number in scientific notation?

A 0.45×10^{-2}

B 4.5×10^{-4}

C 45×10^{-2}
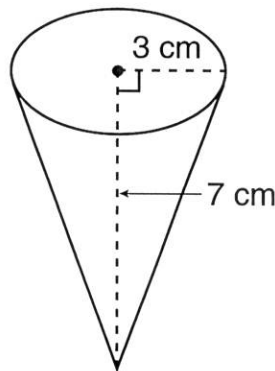
D 4.5×10^{-3}

GO ON

44 The trapezoids below are similar.

What scale factor was used to dilate trapezoid *ABCD* to trapezoid *FGHJ*?

F 1.2

G 1.6

H 0.6

J 0.83

**45** A conical funnel has a 3 centimeter radius and 7 centimeter height, as shown below.

If the funnel is blocked at the bottom, about how many cubic centimeters of water will it take to fill the funnel?

A 66 cm^3

B 264 cm^3

C 44 cm^3

D 88 cm^3

GO ON

46 Cameron is studying the hourly after-school computer usage of eighth-grade students. Which of the following sampling methods is NOT a valid representation of his school's eighth graders?

F Survey every fifth student to come through the cafeteria during eighth-grade lunch.

G Survey all the students in eighth-grade science classes.

H Survey three randomly chosen eighth-grade math classes.

J Survey the students in the after-school computer club.

**47** Which situation is best represented by the graph of $y = 2x + 4$ shown below?
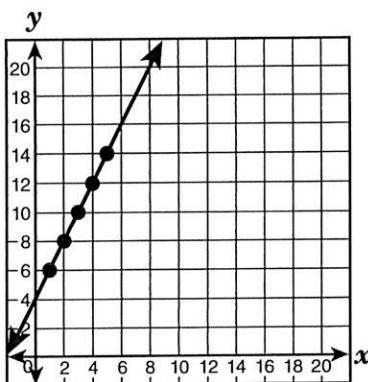
A The cost y, in dollars, of x books costing \$2 each and a \$4 discount

B The perimeter in units, y, of an isosceles triangle with 2 side lengths of x units and base length of 4 units

C The area in square units, y, of a rectangle with twice the width as the length, x units

D The number of tickets, y, Nancy has after sharing x tickets with a friend and finding 4 extra

---

48 An Ironman triathlon starts with a 2.4-mile swim, continues with a 112-mile bike ride, and ends with a marathon of 26.2 miles. If the cut-off time for the race is 17 hours, what is the minimum average speed, in miles per hour, a triathlete needs to complete the race?

F 8.2 mph

G 8.3 mph

H 9.5 mph

J 9.6 mph

GO ON

49 The similar triangles shown below are created by objects and their respective shadows at the same time of day.

44 ft

9 ft

12 ft
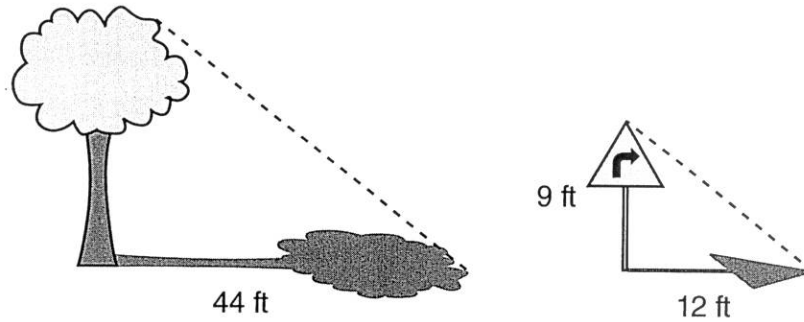
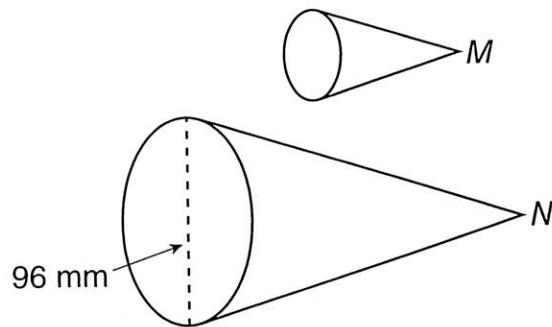What is the height of the tree?

A   33 ft

B   41 ft

C   36 ft

D   47 ft

---

50 A cheese tray is designed with 3 slices of cheddar cheese for every 2 slices of swiss. There are 45 slices of cheddar cheese on a medium-sized tray. How many slices of swiss are needed on the tray?

F   22

G   44

H   30

J   36

GO ON

51   The figure below shows two similar cones.

96 mm

The ratio of the heights of cone M to cone N is 5:8. What is the diameter of cone M?

A   93 mm

B   70 mm

C   60 mm

D   83 mm

---

52   The probability that Tyler earns a scholarship from a state college is $\frac{1}{20}$. The probability that Jessica earns a scholarship from her high school is $\frac{2}{7}$. What is the probability that both students earn scholarships?

F $\frac{1}{70}$

G $\frac{1}{9}$

H $\frac{1}{7}$

J $\frac{1}{90}$

GO ON

53   Mr. Shiraz created his history test using a ratio of 5 multiple-choice questions to 3 short-answer questions. Which proportion can be used to find s, the number of short-answer questions on a test with 30 multiple-choice questions?
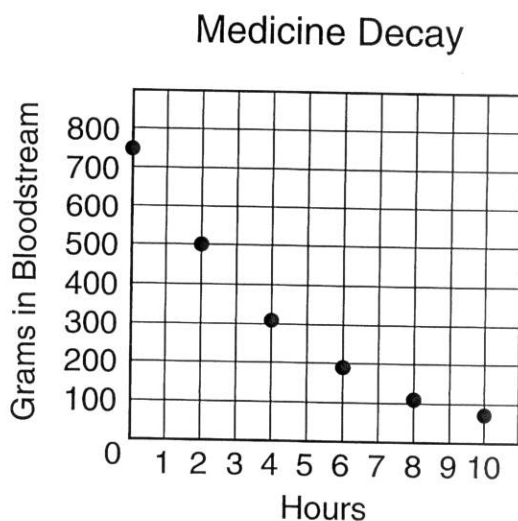
A $\dfrac{s}{30} = \dfrac{5}{3}$

B $\dfrac{5}{50} = \dfrac{s}{3}$

C $\dfrac{5}{3} = \dfrac{30}{s}$

D $\dfrac{s}{5} = \dfrac{3}{50}$

---

54   The graph below represents the amount of medicine left in a person's bloodstream after a given number of hours when given the recommended dose.

Medicine Decay

About how many hours have passed when half of the medicine, 375 grams, is still in the person's bloodstream?

F   3 hours

G   5 hours

H   4 hours

J   2 hours

GO ON

1 Laila calculated that one second represents 0.00001157 of a day. Which of the following expresses the measurement in scientific notation?

A 1.157×10^{-5}

B 11.57×10^{-4}

C 115.7×10^{-8}

D 1.157×10^{-4}

2 Mailing a package in a flat rate box costs between $5.35 and $20.60. Raquel has 3 gifts to mail. If she uses the smallest boxes for two of the gifts, which of the following could be the total amount Raquel spent to mail all three gifts?

F $14

G $27

H $46

J $53

3 The math team purchased $136 in energy bars, $72 in sports drinks, and $44 in pennants to sell at the football game concession stand to raise money to travel to the state math competition. If each item sells for $0.75, how many items must the math team sell in order to make at least $100 in profit?

A 470

B 336

C 581

D 436

GO ON

55 Braydon packed a glass ball decoration into a cubical box with an edge length of 4 centimeters, as shown below.
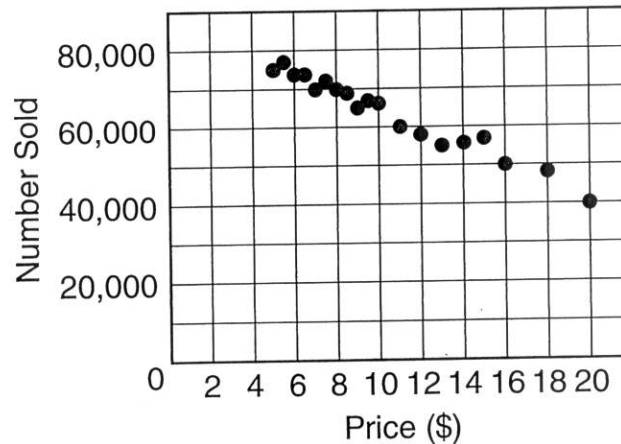

4 cm
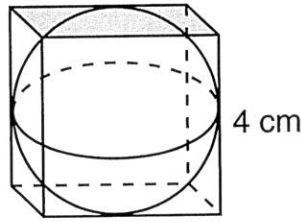
What is the total surface area of the box?

A 48 cm²

B 96 cm²

C 22 cm²

D 64 cm²

---

56 John created the scatterplot below to show the number of movies purchased at different prices.

Movie Price Study

Which best describes the trend shown in the scatterplot?

F Positive trend

G Negative trend

H Mean trend

J No trend

STOP

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)
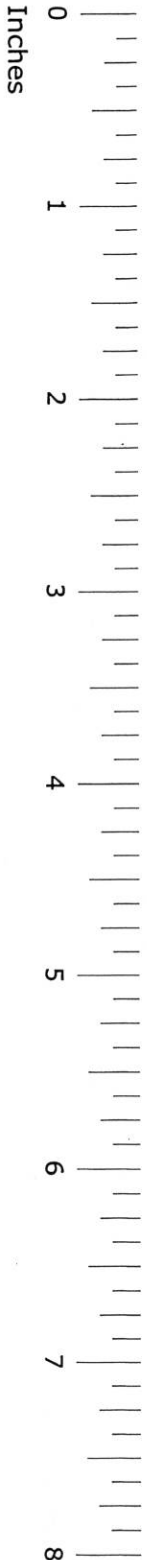
VOLUME AND CAPACITY

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			$a^2 + b^2 = c^2$