

1. Mrs. Rashid loaned her son \$40,200 to buy a boat. She did not charge interest, and the son repaid the loan with 20 equal payments. What was the amount of each payment?

- (A) \$20,200 (B) \$12,200  
(C) \$2,010 (D) none of these

2. One out of every five cars made in the U.S. is red. What percent of the cars made in the U.S. are red?

- (A) 20% (B) 25% (C) 50% (D) 80%

3. About how many kilograms does a 12-pound bag of potatoes weigh?



- (A) 12 kg (B) 6 kg (C) 4 kg (D) 3 kg

4. A bottle of medicine contains 5 fluid ounces. One dose of medicine is 3 teaspoons. How many doses of medicine are in the bottle?

3 teaspoons = 1 tablespoon

2 tablespoons = 1 fluid ounce

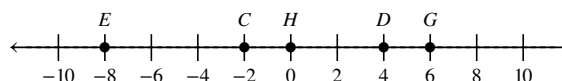
8 fluid ounces = 1 cup

- (A) 8 doses (B) 12 doses  
(C) 10 doses (D) 9 doses

5. What is the length of one side of an equilateral triangle that has a perimeter of  $15\frac{3}{4}$  feet?

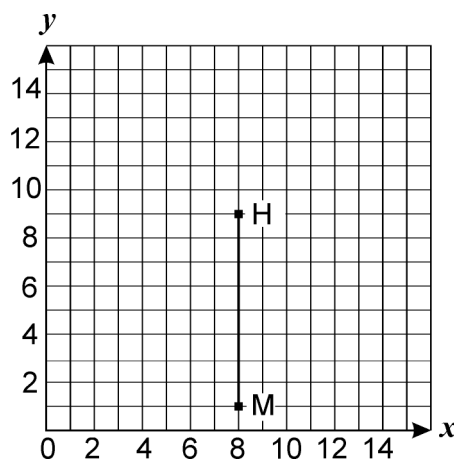
- (A)  $3\frac{1}{3}$  feet (B)  $5\frac{1}{4}$  feet  
(C)  $7\frac{1}{2}$  feet (D)  $47\frac{1}{4}$  feet

6. Using the number line, choose the relation that is true.



- (A)  $G > C$  (B)  $E > C$   
(C)  $E > 0$  (D)  $G < D$

7. Point  $H$  is at (8, 9). Point  $M$  is at (8, 1).



Which of these shows how to find the number of units from point  $H$  to point  $M$ ?

- (A) Add:  $9 + 1$  (B) Add:  $9 + 8$   
(C) Subtract:  $9 - 1$  (D) Subtract:  $9 - 8$

8. How is the product  $3 \times 3 \times 5 \times 5 \times 5$  expressed in exponential notation?

- (A)  $3^5 \times 5^2$  (B)  $3^2 \times 5^3$   
(C)  $9^2 \times 15^3$  (D)  $9^2 \times 125^3$

9. Using the correct order of operations, which computation should you make first?

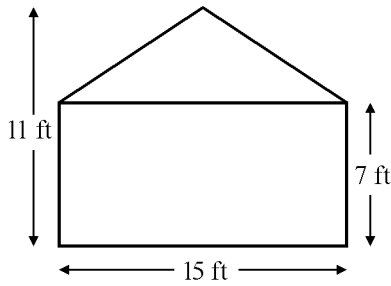
$$7 \div 4 + 1 \times 12 - 4 \div 2$$

- (A)  $7 \div 4$  (B)  $1 \times 12$   
(C)  $4 \div 2$  (D)  $7 \div 2$

10.  $25x$  is equivalent to \_\_\_\_\_.

- (A)  $5xy$                       (B)  $(5 \cdot 5)x$   
(C)  $(5 + 5)x$                 (D)  $2(5x)$

11. The front profile of a shed is depicted in the drawing, with the given dimensions. Find the area of attic part of the profile in square feet.



- (A)  $15 \text{ ft}^2$                       (B)  $30 \text{ ft}^2$   
(C)  $75 \text{ ft}^2$                       (D) none of these

12. Kobi measured two drink cups and found:

- the height of a supersize cup is 20 centimeters
- the height of a regular cup is 14.8 centimeters

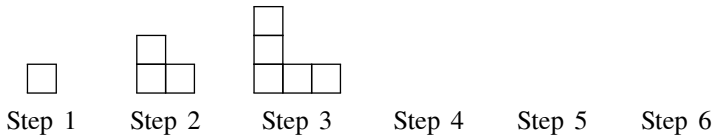
Kobi used this equation to find the difference in height between the supersize cup and the regular cup:

$$x = 20 - 14.8$$

Which of the following problems could be solved with the same equation?

- (A) Mr. Abrams drove his car 20 miles on Saturday and 14.8 miles on Sunday. How many miles did he drive during the weekend?
- (B) The perimeter of a rectangle is 20 inches and the length is 5.2 inches. What is the width?
- (C) Jeff bought 20 yards of rope. He used 14.8 yards for a clothes line. How much rope does he have left over?
- (D) Dan's driveway is 14.8 feet wide by 20 feet long. What is the area of the driveway?

13. a) Randy created a pattern with tiles. Complete the pattern.



b) Record the pattern in the table below. Write each step number in the left column and the corresponding number of tiles in the right column. Be sure to label the columns.



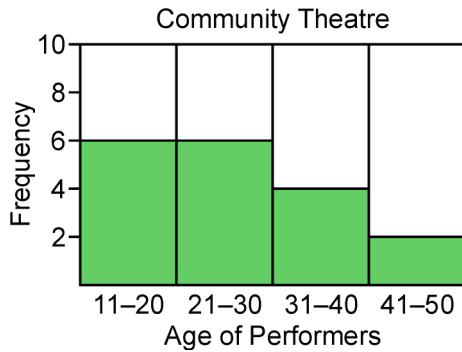
c) Explain how you completed the pattern and state at least one rule for the information in the table.

14. Use the data below to answer the following question(s).

Jennifer belongs to a community theatre group. She collected information about performer ages in a frequency table and displayed the data in a histogram.

**Performer Age**

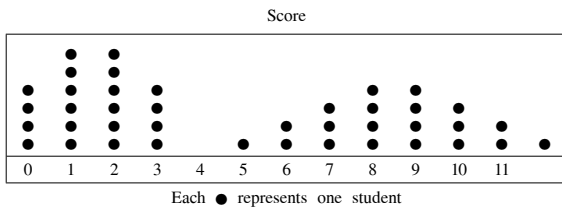
18	19	32	41	16	25
16	24	31	34	23	18
22	37	19	21	48	27



Which of these describes performer ages?

- (A) Exactly 50% of the performers are 30 years old or younger.
- (B) More than 60% of the performers are over 30 years old.
- (C) One-third of the performers are 21–30 years old.
- (D) There are 6 performers who are over 40 years old.

15.



What is the median of the upper half of the data?

- (A) 7
- (B) 8.5
- (C) 9
- (D) 8

16. Tyler recorded his monthly expenses in a table.

	Food	Utilities
Mar	\$138.88	\$44.10
Apr	122.10	35.05
May	95.87	30.67
Jun	127.51	37.98

Find the monthly average Tyler spent on utilities.

- (A) \$36.55
- (B) \$36.95
- (C) \$37.55
- (D) \$37.95

17. Juanita showed the test scores to her parents and said, "I get scores in the 70s most of the time." What measure of central tendency did she use to describe her scores?

- (A) mean  
 (B) mode  
 (C) median  
 (D) none of these

John's Scores				
70	70	18	23	70

18. Karli orders 8 reams of custom stationary, where a ream is 500 sheets of paper. If the order costs \$11.05 per ream, and each sheet is  $8\frac{1}{2}$  inches by 11 inches long, what is the total cost of the order?

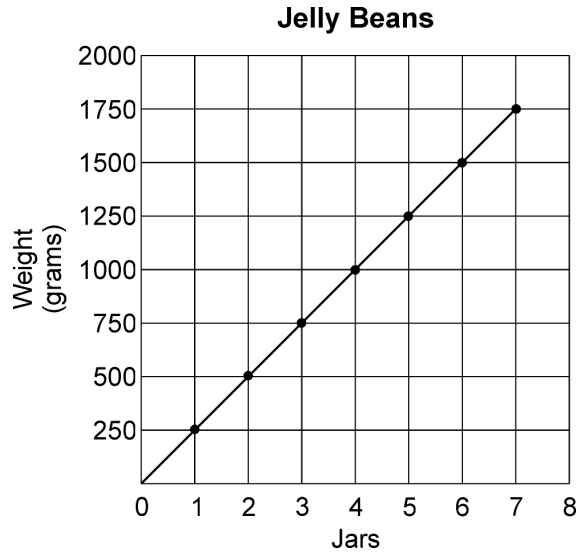
- (A) \$88.40                      (B) \$93.93  
 (C) \$4420                      (D) none of these

19. To help decorate for a school pep rally, Aaron climbed 1.8 m up a ladder. His classmate, Azenki climbed one and a fourth times as high on another ladder. How high did Azenki climb on the ladder?

- (A) 1.35 m                      (B) 2.25 m  
 (C) 2.70 m                      (D) 2.60 m

20. If  $12 \div (-2) = -18 \div x$  then  $x = \underline{\hspace{2cm}}$ .

21. Ban takes jelly beans with him everywhere. The graph shows the weight of jelly beans in various numbers of jars.



Which of these describes the unit rate?

- (A) 3 jars per 750 jelly beans  
 (B) 250 grams per jar  
 (C) 5 jars per 1500 jelly beans  
 (D) 1000 grams per jar

22. Jackson collected data about students who bring lunch from home and recorded the information in the table.

Lunch From Home

School	Students Who Bring Lunch from Home	Total Students
Red Rock Elementary	270	600
Shellrock Elementary	240	400

Which school has the higher percentage of students who bring lunch from home?

- (A) Red Rock because  $270\% > 240\%$                       (B) Shellrock because  $600 > 400$   
 (C) Shellrock because  $60\% > 45\%$                       (D) Red Rock because  $40\% > 10\%$

23. Select the correct symbol to make the sentence true.

$$|5| \begin{matrix} = \\ \neq \end{matrix} |-5|$$

24. Simplify:  $3w + 4 + 2(5 - w)$

- (A)  $2w + 14$                       (B)  $5w + 10$   
 (C)  $2w + 30$                       (D)  $w + 14$

25. A normal shower uses 80 gallons of water, but a low-flow showerhead will reduce that amount by 38%. What is a good estimate of the amount of water used with that low-flow showerhead?

- (A) 48 gallons                      (B) 72 gallons  
 (C) 96 gallons                      (D) 112 gallons

26. Let the symbol  $\square$  mean “multiply by two, then add the next larger integer, then multiply the sum by two.” For example:

$$\square 3 = ((3 \times 2) + 4) \times 2 = 20$$

Find:  $\square 4 + \square 5$

- (A) 190    (B) 234    (C) 240    (D) 350

27. The chart shows some shipping and handling charges for a mail-order company.

SHIPPING AND HANDLING

Zone	1	2
Destination	Delaware Maryland	New Jersey New York
41-45 lb	\$7.25	\$9.80
46-50 lb	\$7.50	\$10.00
51-55 lb	\$7.75	\$10.20
56-60 lb	\$8.00	\$10.40

Which is most likely the shipping and handling charge for sending a 62 lb package to Delaware?

- (A) \$8.25                      (B) \$8.50  
 (C) \$10.60                      (D) \$11.00

28. The scale on a map is 1 cm = 120 km. Two cities that are 300 km apart are how far apart on the map?

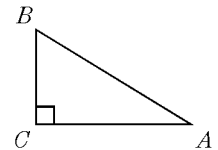
- (A) 2 cm                              (B)  $2\frac{1}{2}$  cm  
 (C) 3 cm                              (D)  $3\frac{1}{2}$  cm

29. In drawing plans to decorate a baby’s room that is 8 feet by 10 feet, a designer uses a scale of 1 inch to represent 1 foot. In drawing the plans, what would be the width of a crib that measures 30 inches wide and 48 inches long?

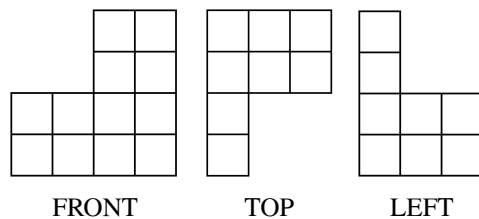
- (A) 2 inches                      (B) 2.5 inches  
 (C) 4 inches                      (D) 4.5 inches

30. In right triangle  $ABC$ ,  $m\angle A = 48^\circ$ . Find the measure of  $\angle B$ .

- (A)  $12^\circ$                       (B)  $32^\circ$   
 (C)  $42^\circ$                       (D)  $130^\circ$



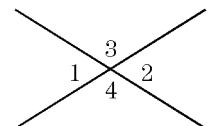
31. The side, front, and top views of an object built from cubes are shown. How many cubes are needed to construct this object?



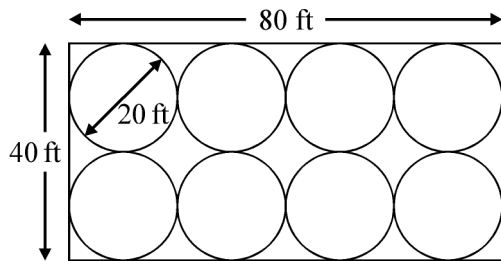
- (A) 20    (B) 16    (C) 12    (D) 9

32. Angles 1 and 2 are \_\_\_\_\_?

- (A) supplementary  
 (B) complementary  
 (C) right  
 (D) vertical



33. A rectangular field is covered by circular sprinklers as shown in the diagram. What percentage of the field is being watered by the sprinklers?



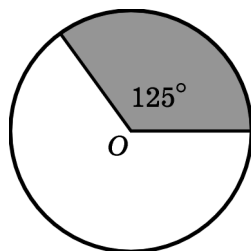
- (A) 79% (B) 71% (C) 29% (D) 21%

34. Becky put 3 balls marked A, B, or C in a box. She then picked one ball out, noted its letter, and put it back in the box. She did this 90 times. She then checked to see how many times B or C were picked. What was the likely result?

- (A) A was picked more often than B or C.  
 (B) B or C was picked twice as often as A.  
 (C) B or C was picked  $\frac{1}{3}$  of the time.  
 (D) A was picked  $\frac{1}{2}$  of the time.

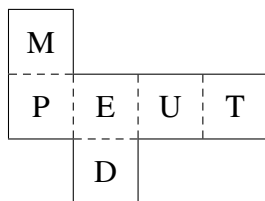
35. A dart randomly lands on the circle. What is the probability that it lands in the shaded area?

- (A)  $\frac{1}{3}$  (B)  $\frac{5}{12}$   
 (C)  $\frac{13}{36}$  (D)  $\frac{25}{72}$



36. The diagram shows the faces of a cube. If this cube is tossed 3 times, which of the following sequences of letters *cannot* occur?

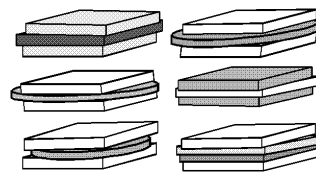
- (A) PUP  
 (B) TED  
 (C) MUD  
 (D) PAD



37. A regular deck of cards has 13 red hearts, 13 red diamonds, 13 black spades, and 13 black clubs. If Mike pulls out two cards, what are all the possible outcomes for the colors of the cards?

- (A) 2 reds, 2 blacks, or 1 red and 1 black  
 (B) 2 reds or 2 blacks  
 (C) 2 blacks, or 1 red and 1 black  
 (D) 2 reds, or 1 red and 1 black

38. Kelvin is going on a camping trip with his family. He packed 6 different sandwiches to eat during the entire camping trip. He plans on eating two sandwiches once he gets to the campsite. The order he eats them in is not important.



How many different combinations of 2 sandwiches are possible for Kelvin to eat?

- (A) 27 (B) 15 (C) 12 (D) 8

39. Which of the following is an irrational number?

- (A)  $\sqrt{16}$  (B)  $\sqrt{24}$  (C)  $\sqrt{36}$  (D)  $\sqrt{64}$

40. Express  $0.3666\dots$  as a number in the form  $\frac{a}{b}$  where  $a$  and  $b$  are integers.

41. Look at this pattern:

$$\sqrt{81} = 8 + 1 = 9.$$

$$\sqrt{2025} = 20 + 25 = 45.$$

$$\sqrt{3025} = 30 + 25 = 55.$$

Find a six-digit square root that follows the pattern.

42. Find the square roots:

$$\sqrt{400} = \boxed{\phantom{00}}$$

$$\sqrt{0.49} = \boxed{\phantom{00}}$$

$$\sqrt{\frac{4}{9}} = \boxed{\phantom{00}}$$

$$\sqrt{5^{10}} = \boxed{\phantom{00}}$$

43. Write the equation of the line which passes through the point  $(1, -2)$  and has a slope of  $-\frac{2}{3}$ .

(A)  $2x + 3y = -6$       (B)  $2x + 3y = -4$

(C)  $2x + 3y = -1$       (D)  $2x - 3y = -7$

44. Consider  $5x - 8y = 30$ . As  $x$  increases by  $k$  units, what is the resulting change in  $y$ ?

45. Blue Moon and Star Point are two different companies that operate tour buses.

The Star Point bus travels at 45 mph.

The Blue Moon bus travels at 35 mph.

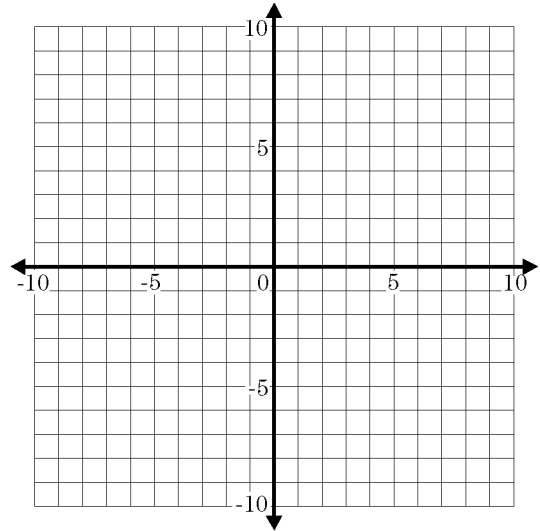
The Blue Moon bus traveled 6 miles before the Star Point bus tour began.

How long did it take Star Point to catch up to Blue Moon?

46. What can be said about the graphs of  $y = 4x$  and  $y = -4(2 - x)$ ?

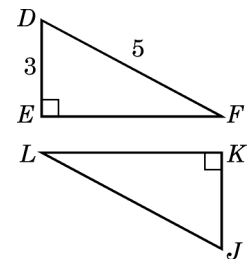
- (A) They are curves that intersect once.  
 (B) They are curves that intersect twice.  
 (C) They are two lines that are parallel.  
 (D) They are two lines that intersect at two points.

47. Graph the equation  $y = 5x - 3$  for the interval  $x = -3$  to  $x = 1$ .



48. Given that  $\triangle DEF \cong \triangle JKL$ , find the length of  $\overline{KL}$ .

- (A) 3      (B) 4  
 (C) 5      (D)  $\sqrt{34}$

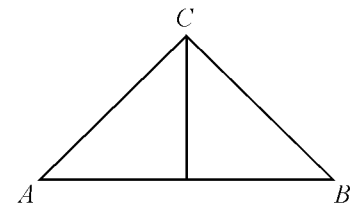


49. A small rectangular cabinet door has a width of 12 inches and a diagonal of 28 inches. Find the length of the door.

- (A) 42.6 inches      (B) 34.2 inches  
 (C) 25.2 inches      (D) 19.0 inches

50. Nathaniel starts building a frame for a tent that is an isosceles triangle. The base,  $\overline{AB}$  has a length of 12 feet and the height of the truss is 7 feet. Approximately how long is  $\overline{AC}$ ?

- (A) 13.25 ft  
 (B) 10.14 ft  
 (C) 9.22 ft  
 (D) 8.56 ft



1.  
Answer: C  
Objective: 6.RP.3B  
Points: 1
2.  
Answer: A  
Objective: 6.RP.3C  
Points: 1
3.  
Answer: B  
Objective: 6.RP.3D  
Points: 1
4.  
Answer: C  
Objective: 6.RP.3D  
Points: 1
5.  
Answer: B  
Objective: 6.NS.1  
Points: 1
6.  
Answer: A  
Objective: 6.NS.7A  
Points: 1
7.  
Answer: C  
Objective: 6.NS.8  
Points: 1
8.  
Answer: B  
Objective: 6.EE.1  
Points: 1
9.  
Answer: A  
Objective: 6.EE.2C  
Points: 1
10.  
Answer: B  
Objective: 6.EE.4  
Points: 1
11.  
Answer: B  
Objective: 6.G.1  
Points: 1

12.  
Answer: C  
Objective: 6.EE.5  
Points: 1
13.  
Answer: [graph]; 

Step	Tiles
1	1
2	3
3	5
4	7
5	9
6	11

; each step adds 2  
  
Objective: 6.EE.6  
Points: 1
14.  
Answer: C  
Objective: 6.SP.2  
Points: 1
15.  
Answer: B  
Objective: 6.SP.5C  
Points: 1
16.  
Answer: B  
Objective: 6.SP.5C  
Points: 1
17.  
Answer: B  
Objective: 6.SP.5D  
Points: 1
18.  
Answer: A  
Objective: 7.RP.1  
Points: 1
19.  
Answer: B  
Objective: 7.RP.1  
Points: 1
20.  
Answer: 3  
Objective: 7.RP.3  
Points: 1



21.  
Answer: B  
Objective: 7.RP.2D  
Points: 1

22.  
Answer: C  
Objective: 7.RP.3  
Points: 1

23.  
Answer: 1  
Objective: 7.NS.3  
Points: 1

24.  
Answer: D  
Objective: 7.EE.1  
Points: 1

25.  
Answer: A  
Objective: 7.EE.3  
Points: 1

26.  
Answer: D  
Objective: 7.EE.3  
Points: 1

27.  
Answer: A  
Objective: 7.EE.3  
Points: 1

28.  
Answer: B  
Objective: 7.G.1  
Points: 1

29.  
Answer: B  
Objective: 7.G.1  
Points: 1

30.  
Answer: C  
Objective: 7.G.2  
Points: 1

31.  
Answer: A  
Objective: 7.G.3  
Points: 1

32.  
Answer: D  
Objective: 7.G.5  
Points: 1

33.  
Answer: A  
Objective: 7.G.4  
Points: 1

34.  
Answer: B  
Objective: 7.SP.6  
Points: 1

35.  
Answer: D  
Objective: 7.SP.7A  
Points: 1

36.  
Answer: D  
Objective: 7.SP.8B  
Points: 1

37.  
Answer: A  
Objective: 7.SP.8B  
Points: 1

38.  
Answer: B  
Objective: 7.SP.8B  
Points: 1

39.  
Answer: B  
Objective: 8.NS.1  
Points: 1

40.  
Answer:  $\frac{11}{30}$   
Objective: 8.NS.1  
Points: 1

41.  
Answer: [answers vary]  
Objective: 8.EE.2  
Points: 1

42.  
Answer:  $20, 7\frac{2}{3}, 3125$   
Objective: 8.EE.2  
Points: 1

43.  
Answer: B  
Objective: 8.EE.6  
Points: 1

44.  
Answer: increases by  $\frac{5}{8}k$  units  
Objective: 8.EE.6  
Points: 1

45.  
Answer:  $\frac{6}{10}$  hour or 36 minutes  
Objective: 8.EE.7B  
Points: 1

46.  
Answer: C  
Objective: 8.EE.8A  
Points: 1
47.  
Answer: [graph]  
Objective: 8.F.3  
Points: 1
48.  
Answer: B  
Objective: 8.G.2  
Points: 1
49.  
Answer: C  
Objective: 8.G.7  
Points: 1
50.  
Answer: C  
Objective: 8.G.7  
Points: 1