8th grade practice test

Objective 1.1a

1. **Stacey earns $15 each week plus $.50 for each customer on her paper route. She wants to earn at least $25 each week. What equation can she use to find *x*, the number of customers she needs to make exactly $25?**

A $x + 15 = 25$

B $0.50x + 15 = 25$

C $2x + 15 = 25$

D $50x + 15 = 25$

2. **What value of *x* makes this equation true?**

$$4x - 10 = 18$$

A 2

B 4

C 7

D 8

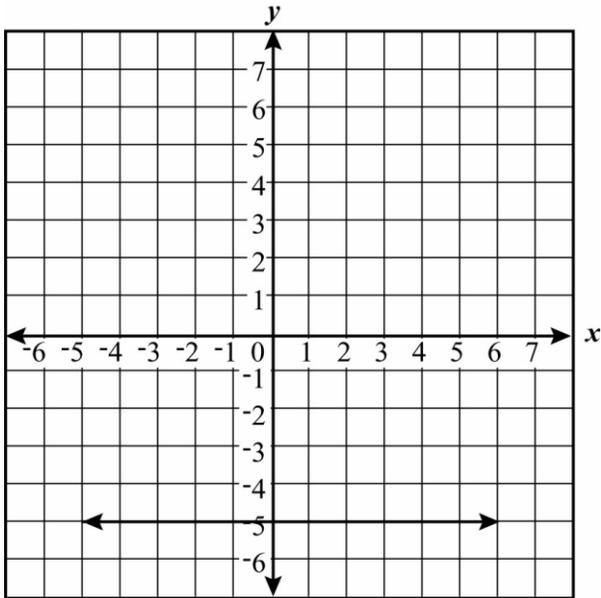3. **Which equation below could represent the data in the table?**

Table of Values

x	y
-2	-1
-1	1
0	3
1	5
2	7

A $y = x + 2$

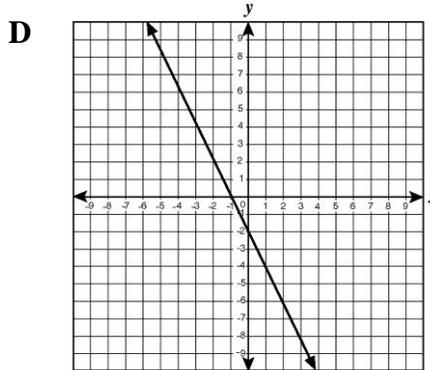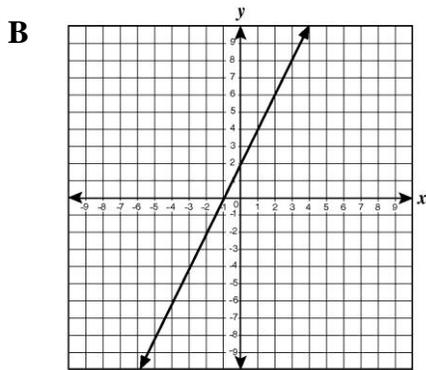B $y = x + 4$
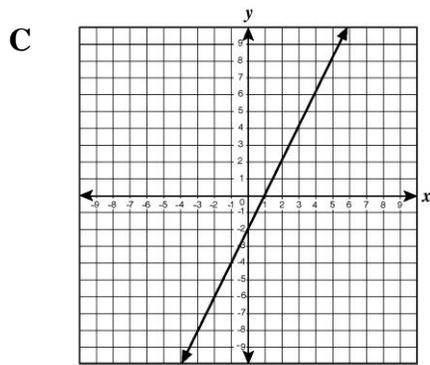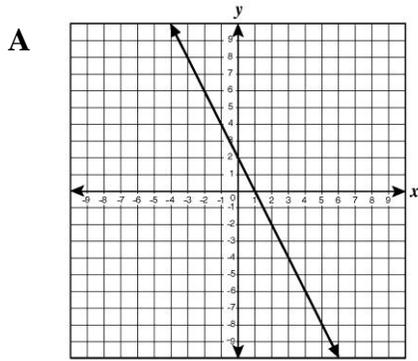
C $y = 2x + 3$

D $y = 3x + 1$

Objective 1.1b

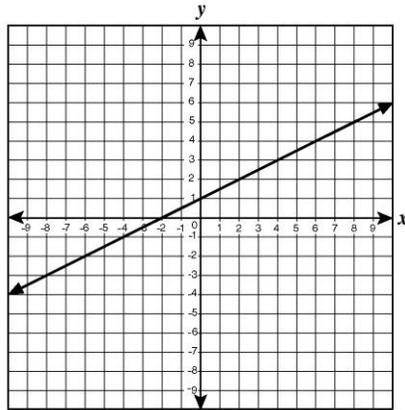**4. Which equation best represents the line shown on the graph?**

A $x = 5$

B $x = -5$

C $y = 5$

D $y = -5$

5. Which graph best represents the equation $y = -2x - 2$?
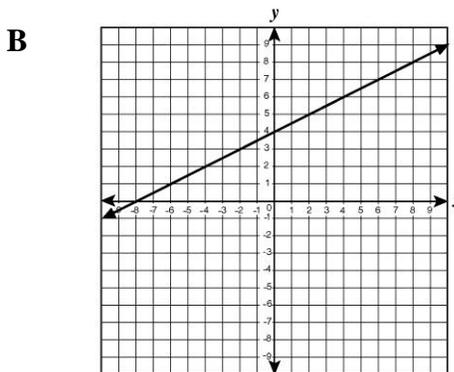
A

C

B

D

Objective 1.1c

6. **The graph below represents the equation** $y = \dfrac{1}{2}x + 1$.

Which graph best represents the equation created when the slope of $y = \dfrac{1}{2}x + 1$ **is changed to 4?**

A

C

B

D
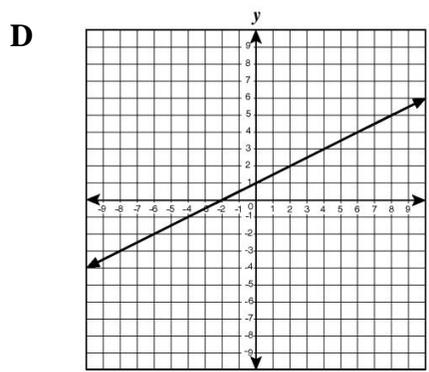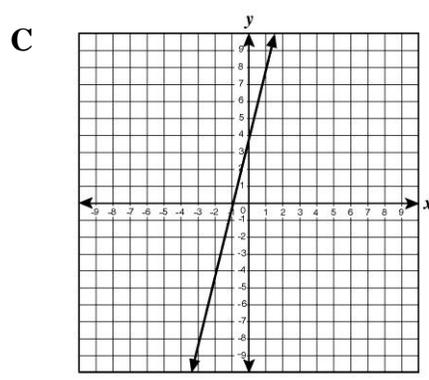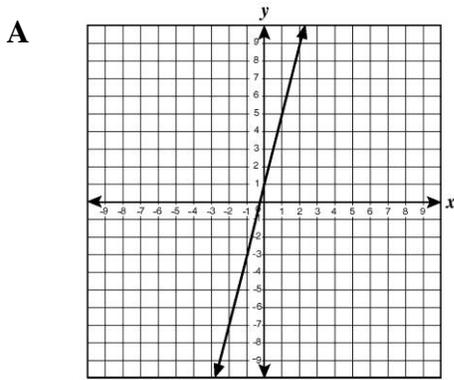
7. **The graph of the equation y = 6x is shown below.**
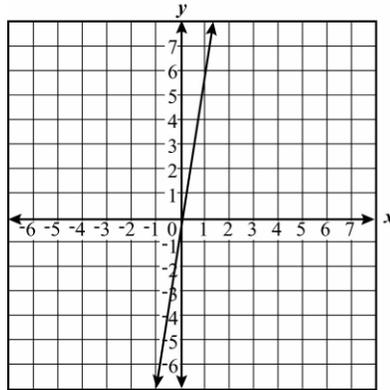
Which graph best represents the equation created when the slope of y = 6x is changed to 0?

A

C

B

D
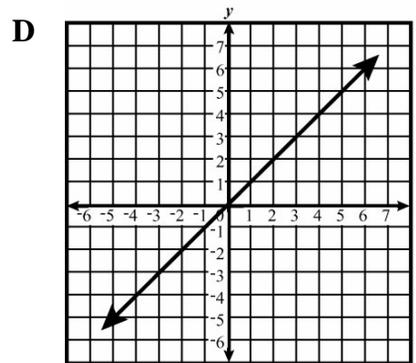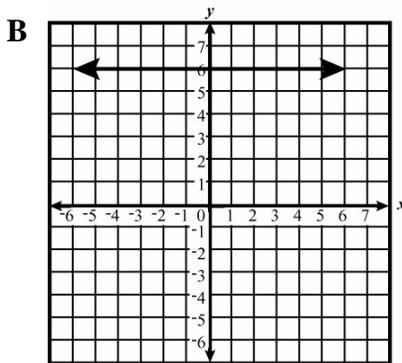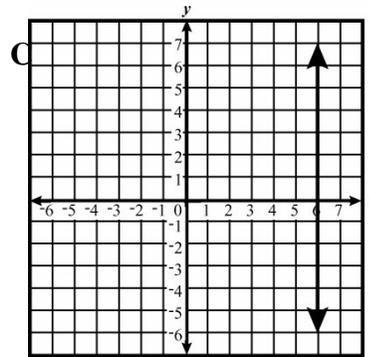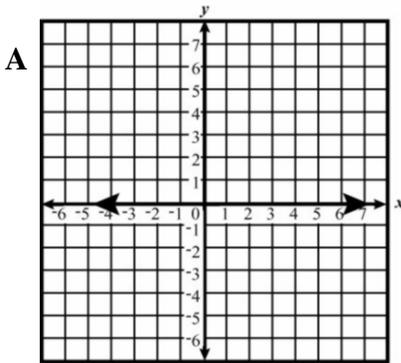
Objective 1.2a

8. **What are the solutions to the following inequality?**

$$4x \geq 68$$

A $x > 64$

B $x \geq 64$

C $x > 17$

D $x \geq 17$

9. **What are the solutions to the following inequality?**

$$2x + 6 < 4$$

A $x < 1$

B $x < -1$

C $x > 1$

D $x > -1$

10. **Melissa has $20 to buy bagels and juice for her class.**

box of bagels	$6.13, including tax
bottle of juice	$2.08, including tax

She will buy one box of bagels. With the rest of the money, Melissa will buy as many bottles of juice as possible. Which inequality can she use to find b, the <u>maximum</u> number of bottles of juice she can buy?

A $6.13b + 2.08 \leq 20.00$

B $6.13 + 2.08b \leq 20.00$

C $6.13b + 2.08 \geq 20.00$

D $6.13 + 2.08b \geq 20.00$

11. **The picture of the balance shown below models an inequality.**
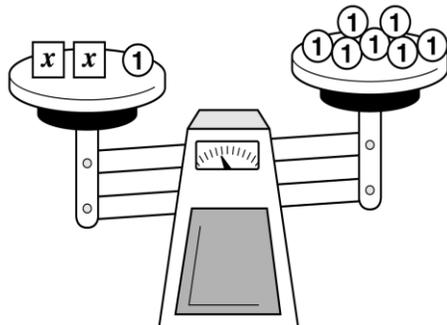
What solutions make the inequality true?

A $x > 3$
B $x < 3$
C $x > 6$
D $x < 6$

Objective 1.2b

12. Which inequality best represents the solution set shown on the number line?
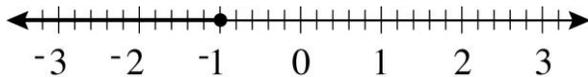
A $n < -1$

B $n \leq -1$

C $n > -1$

D $n \geq -1$

13. Which graph best represents the solution set for the following inequality?

$$5n + 2 \leq 12$$

A

B

C

D
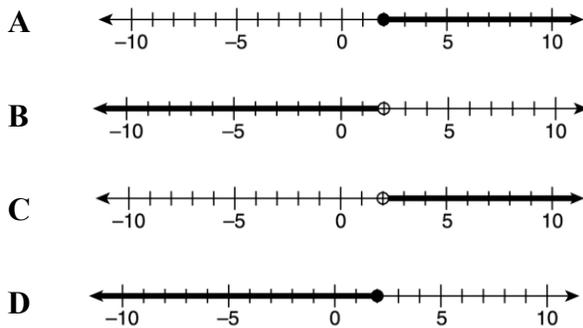
14. Which shows the fractions in order from <u>least</u> to <u>greatest</u>?

$$\frac{5}{8}, \frac{1}{2}, \frac{3}{4}, \frac{3}{8}, \frac{1}{4}$$

A $\dfrac{5}{8}, \dfrac{3}{8}, \dfrac{3}{4}, \dfrac{1}{4}, \dfrac{1}{2}$

B $\dfrac{1}{4}, \dfrac{3}{8}, \dfrac{1}{2}, \dfrac{5}{8}, \dfrac{3}{4}$

C $\dfrac{1}{2}, \dfrac{1}{4}, \dfrac{3}{4}, \dfrac{3}{8}, \dfrac{5}{8}$

D $\dfrac{3}{4}, \dfrac{5}{8}, \dfrac{1}{2}, \dfrac{3}{8}, \dfrac{1}{4}$

15. Which statement below is true?

A $\dfrac{1}{8} > 0.10$

B $0.25 = \dfrac{4}{25}$

C $\dfrac{1}{2} < 0.50$

D $-6 > 3$

16. Adam, Dave, Kyla, and Dan gathered 100 eggs from the hen house. The table shows what part of the total each one gathered.

Eggs Gathered

Name	Part of the Total Eggs Gathered
Adam	$\dfrac{1}{4}$
Dave	0.31
Kyla	26%
Dan	$\dfrac{9}{50}$

Which lists the names in the order of the person who gathered the <u>most</u> eggs to the person who gathered the <u>least</u> eggs?

A   Dan, Adam, Kyla, Dave

B   Adam, Kyla, Dave, Dan

C   Kyla, Dave, Dan, Adam

D   Dave, Kyla, Adam, Dan

17. The slopes, *m*, of four hills are shown below.

$$m = \frac{6}{15} \qquad m = \frac{15}{25} \qquad m = \frac{4}{40} \qquad m = \frac{6}{20}$$

If the steepest slope is the one with the greatest number, which slope is the steepest?

A $m = \dfrac{6}{15}$

B $m = \dfrac{15}{25}$

C $m = \dfrac{4}{40}$

D $m = \dfrac{6}{20}$

Objective 2.1b

18. Ms. Johnson has a total of 325 papers to grade. She has graded $\dfrac{2}{5}$ of the papers. How many papers does Ms. Johnson have left to grade?

A 125
B 130
C 150
D 195

19. The shirt Jamie bought was priced at $8.95. He paid 4.5% in sales tax. Which expression could Jamie use to determine the total cost of the shirt?

A **8.95 × 0.045**

B **8.95 + (8.95 × 0.045)**

C **8.95 ÷ 0.045**

D **8.95 − (8.95 × .045)**

20. Clyde's truck travels an average distance of 12 miles per gallon of gas. When full, his truck's tank holds 40 gallons of gas. If the tank is $\frac{7}{8}$ empty, about how many more miles can the truck travel before the tank is completely empty?

A   35 mi

B   60 mi

C   180 mi

D   420 mi

Objective 2.1c

21. Which ratio is equivalent to the following?

$$3:5$$

A   6 : 18
B   9 : 15
C   12 : 15
D   15 : 20

22. At Geri's school, 2 out of every 9 eighth-grade girls tried out for the volleyball team. If there are 216 eighth-grade girls at the school, how many tried out for the team?

A   18
B   24
C   48
D   108

Objective 2.2a

23. What is the simplified form of $\frac{a^8}{a^2}$?

A a^{10}

B a^6

C $2a^4$

D $2a^{10}$

24. What is the missing number in the pattern?

$$7^{-1} = \frac{1}{7}$$

$$7^0 = 1$$

$$7^1 = 7$$

$$7^2 = 49$$

$$7^3 = ?$$

A   -49

B   21

C   56

D   343

25. If $\dfrac{m^9}{m^6} = 8$, **what is the value of** $\dfrac{m^5}{m^2}$ **?**

A 3

B 7

C 8

D 14

Objective 2.2b

26. Astronomers estimate the internal temperature of the sun is 15,000,000 ° K. What is 15,000,000 written in scientific notation?

A 1.5×10^8

B 1.5×10^7

C 1.5×10^6

D 1.5×10^5

27. The table shows the masses of four planets.

Planets by Mass

Planet	Mass (kg)
Jupiter	1.9×10^{27}
Mercury	3.3×10^{23}
Earth	5.98×10^{24}
Neptune	1.02×10^{26}

Which lists these planets in order from <u>least</u> to <u>greatest</u> mass?

A Jupiter, Neptune, Earth, Mercury

B Mercury, Earth, Neptune, Jupiter

C Neptune, Jupiter, Mercury, Earth

D Jupiter, Neptune, Mercury, Earth

28. What is the product of the expression shown below?

$$(3 \times 10^2)(4 \times 10^3)$$

A 1.2×10^5

B 7×10^5

C 1.2×10^6

D 7×10^6

Objective 2.2c

29. Light travels at a speed of 299,792,458 meters per second. Which is closest in value to the speed of light?

A 2.9×10^6 m/s

B 2.9×10^8 m/s

C 3.0×10^6 m/s

D 3.0×10^8 m/s

30. Jim correctly found the product of the two decimal numbers shown below. Which is closest to the product?
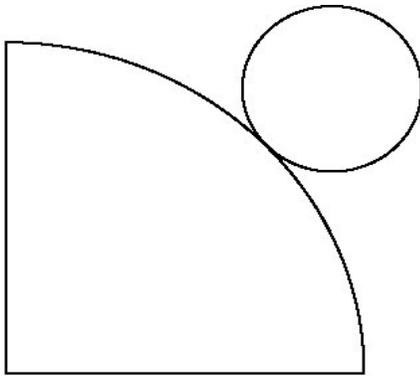0.4899, 0.8124

A   1.30
B   0.50
C   0.40
D   0.32

Objective 3.1

31. Which of the following is a prism?

A cylinder
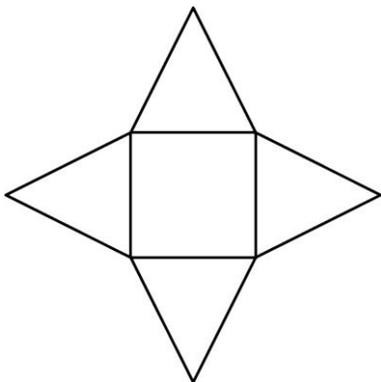
B cube

C sphere

D pyramid

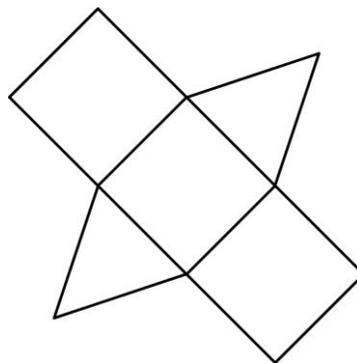**32. Which geometric solid can be formed by folding the net drawn below?**

A cylinder

B cube

C cone

D sphere

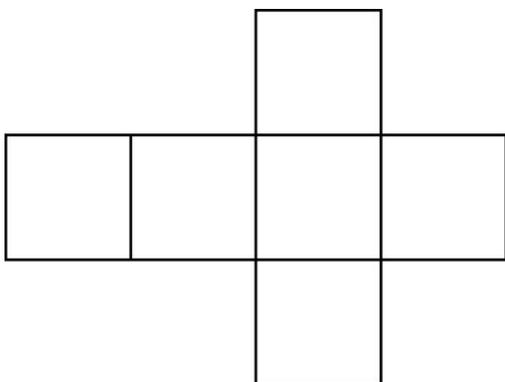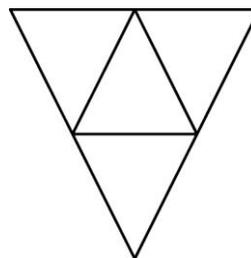**33. Which two-dimensional pattern can be folded to make a triangular prism?**

A

C

B

D

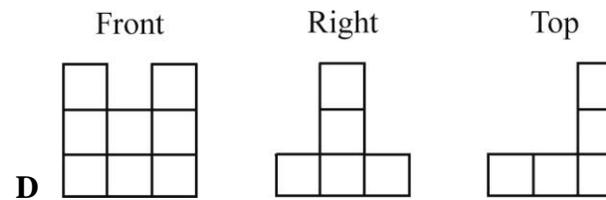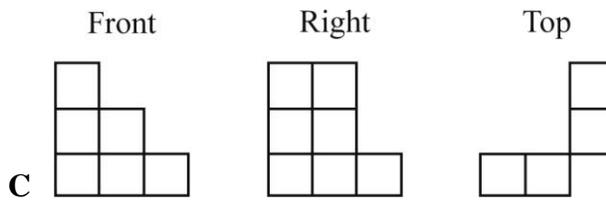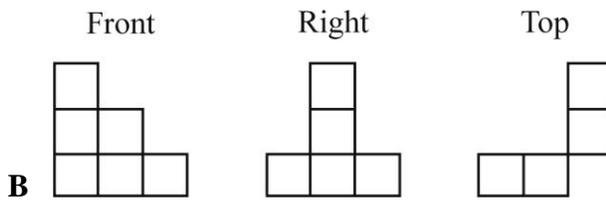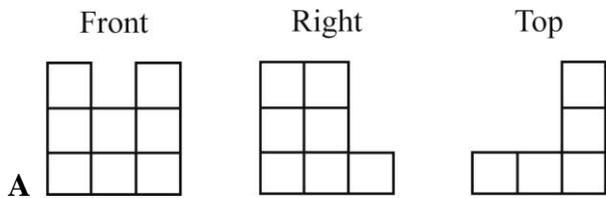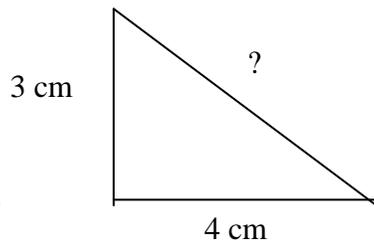**34. The drawing below represents a 3-dimensional figure.**
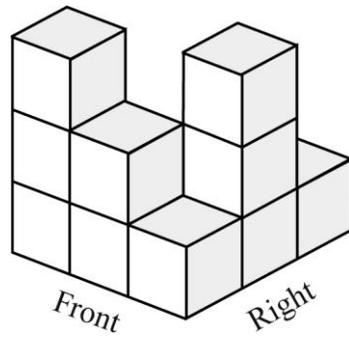
Which drawing could show the front, right, and top views of the figure?

Front   Right   Top

A

Front   Right   Top

B

Front   Right   Top

C

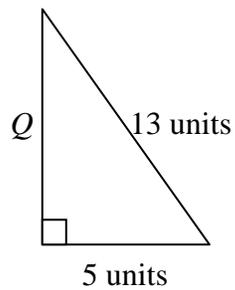Front   Right   Top

D

35. What is the missing length of the right triangle shown below?

A 5 cm

B 6 cm

C 7 cm

D 8 cm

36. What is the length of side Q in the triangle below?

A 8 units

B 12 units

C 14 units

D 18 units

37. What is the length of side P in the figure below?
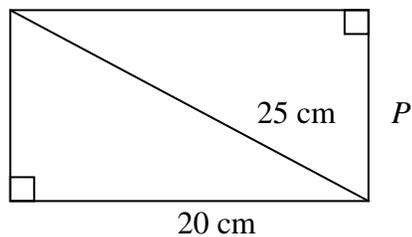
A 6.7 cm

B 11 cm

C 15 cm

D 45 cm

38. The catcher in a baseball game threw the baseball from home plate to second base.

2nd
Base

90 ft

90 ft

3rd
Base

1st
Base

Home
Plate
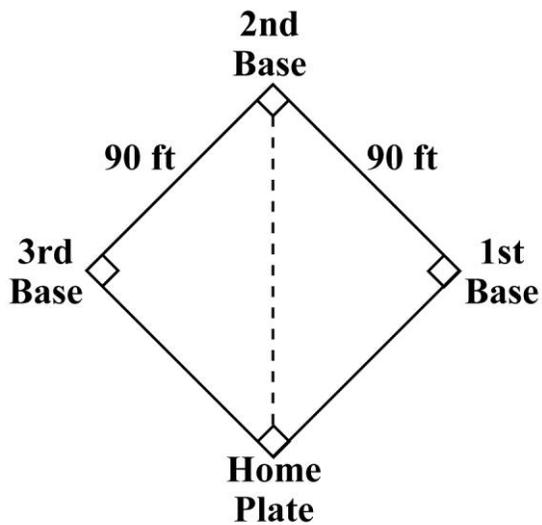
Which is closest to the distance the ball was thrown?

A   90 ft

B   110 ft

C   127 ft

D   153 ft

39. The figure below shows some of the dimensions of a trapezoid.

20 in.

10 in. f 10 in.

32 in.
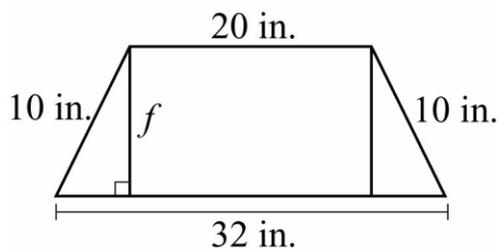
What is f, the height of the trapezoid?

A   6 in.

B   8 in.

C   12 in.

D   13 in.

Objective 4.1

40. The length of each edge of the cube shown below is 5 centimeters.

5 cm

5 cm
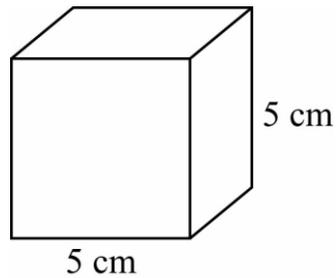
What is the surface area of the cube?

A 100 cm^2

B 125 cm^2

C 150 cm^2

D 175 cm^2

41. A box is 10 inches long, 3 inches wide, and 4 inches high. What is the surface area, in square inches, of the closed box?

$$SA_{rectangular\ prism} = 2(lw + wh + lh)$$

A 120 sq in.
B 134 sq in.
C 140 sq in.
D 164 sq in.

42. Molly built a teepee in the shape of a cone. The diameter of the base is 12 feet and the height is 18 feet.

18 ft

12 ft
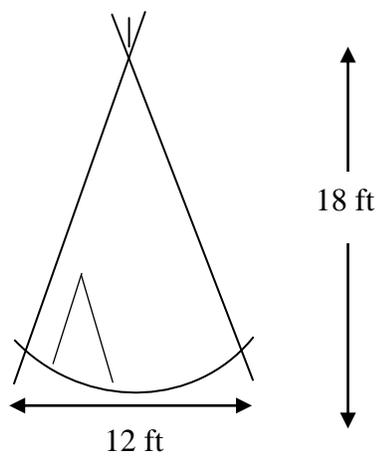
What is the volume of the cone?

$$V_{cone} = \frac{1}{3}\pi r^2 h$$

A 72π cu ft

B 216π cu ft

C 648π cu ft

D 864π cu ft

43. Patrick has a cylindrical coffee cup and a cylindrical glass with the dimensions shown below.

10 mm   11 mm
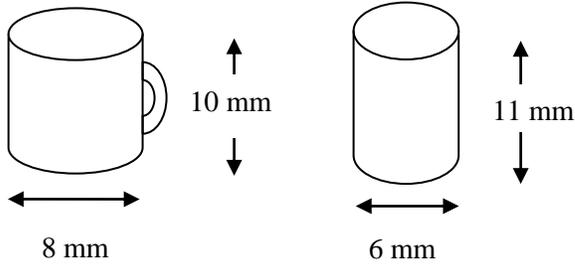
8 mm   6 mm

What is the difference in the volumes of the two cylinders? (Use π = 3.14)

$$\text{Volume}_{\text{cylinder}} = \pi r^2 h$$

A 61π mm^3

B 124π mm^3

C 244π mm^3

D 541π mm^3

Objective 4.2

44. The diagram shows the dimensions of a cylinder.

15 m

10 m
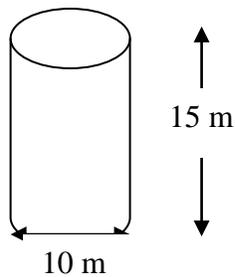
Which of these could be the dimensions of a different cylinder that is similar to the one shown in the diagram?

A   diameter = 6, height = 8

B   diameter = 6, height = 9

C   diameter = 9, height = 12

D   diameter = 9, height = 15

45. Triangle *KLM* is similar to triangle *QRS*.

What is the length of side *KL*?

A   15.13 ft
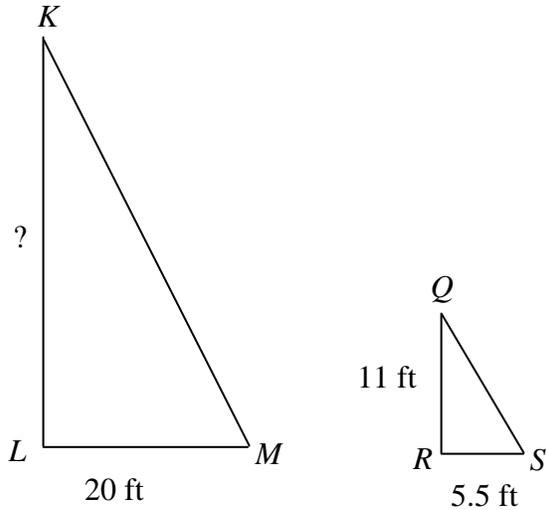
B   20 ft

C   28.25 ft

D   40 ft

46. Albert has a rectangular print that is 1 foot in length and 8 inches in width. He wants to reduce the dimensions of the print proportionally so that the new print has a width of 3 inches. What should be the length of the new print?

A 2.6 in.

B 4.5 in.

C 7.5 in.

D 9 in.

47. Which of these can be used to find r, the speed in miles per hour, of an airplane that traveled 2000 miles for 5 hours?
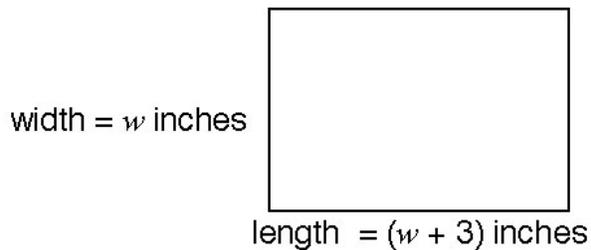
A $2000 = \dfrac{r}{5}$

B $2000 = \dfrac{5}{r}$

C $2000 = 5r$

D $2000 = 5 + r$

48. The perimeter (p) of the rectangle below is 30 inches. Which formula can be used to find the length and width of the rectangle?
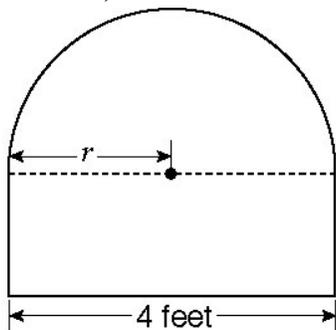
width = w inches

length = $(w + 3)$ inches

A $p = w + (w + 3)$

B $p = w(w + 3)$

C $p = 2w + 2(w + 3)$

D $p = 2(w + 3) - 2w$

49. The shape below is made up of a rectangle and a semicircle. What is the area, in square feet, of the semicircle?

$$\text{Area}_{circle} = \pi r^2$$

A 2π ft^2

B 4π ft^2

C 8π ft^2

D 16π ft^2

50. The area of a rectangular playing field is 5000 square feet. The width of the field is half its length. What is the width of the playing field?

$$A = lw$$

A   25 ft

B   50 ft

C   100 ft

D   300 ft

51. The diagram below shows a walkway that goes all the way around a rectangular garden.
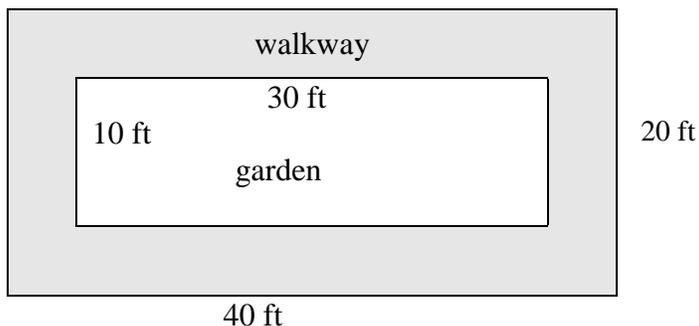
What is the area, in square feet, of the walkway?

A   50 sq ft

B   100 sq ft

C   300 sq ft

D   500 sq ft

52. The drawing shows an isosceles triangle *PQR*.   Each vertex of triangle *PQR* is a point on circle *O*.
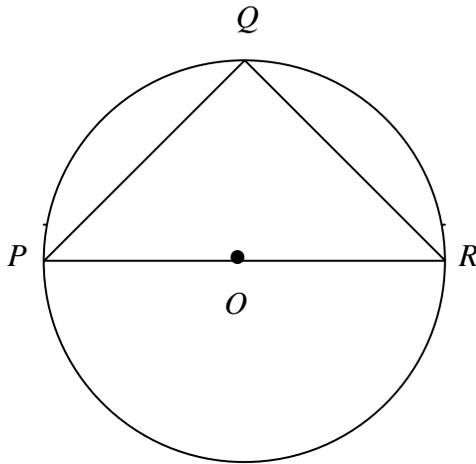

If the circumference of circle *O* is 10π units, what is the <u>area</u> of triangle *PQR*?

$$\text{Area}_{triangle} = \frac{1}{2}bh$$

A 100 sq units

B 50 sq units

C 30 sq units

D 25 sq units

Objective 5.1

53. Jill plans to conduct a survey to study the relationship between the number of hours a student watches television and the student's quiz scores. Which would be an appropriate way for Jill to display the relationship in the survey data?
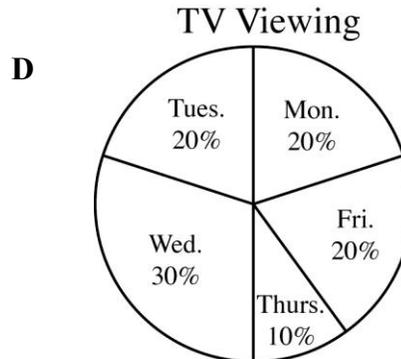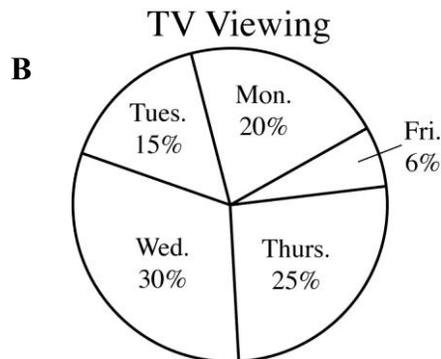
A   **stem-and-leaf plot**

B   **histogram**

C   **circle graph**

D   **scatter plot**

54. Eighth-graders were asked about their favorite night to watch TV. The table shows the results of the survey.

TV Viewing

Night	Percent Favoring
Monday	20%
Tuesday	15%
Wedneday	30%
Thursday	25%
Friday	10%

Which graph shows the information from the table?

A

TV Viewing

Tues. 15%
Mon. 20%
Wed. 30%
Fri. 10%
Thurs. 25%

C

TV Viewing

Tues. 10%
Wed. 20%
Mon. 40%
Thurs. 20%
Fri. 10%

B

TV Viewing

Mon. 20%
Tues. 15%
Fri. 6%
Wed. 30%
Thurs. 25%

D

TV Viewing

Tues. 20%
Mon. 20%
Fri. 20%
Wed. 30%
Thurs. 10%
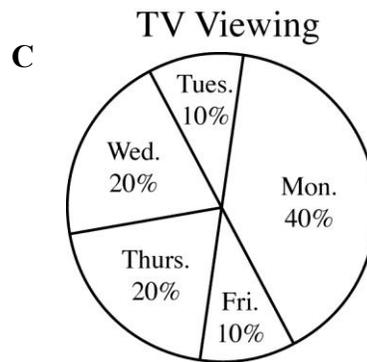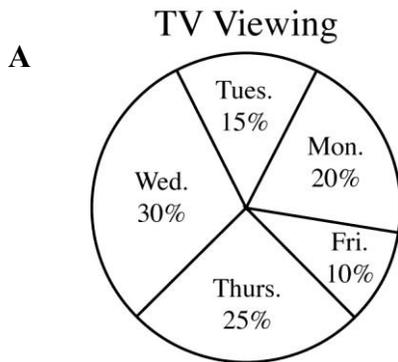
55. The table shows the average attendance for 4 different athletic events during the past year.

**Average Attendance
At Athletic Events**
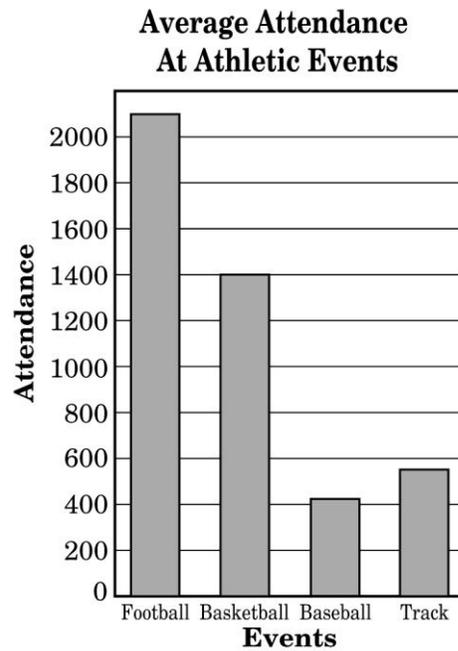
About how much greater was the average attendance for the football events than the track events?

A 14

B 15

C 1450

D 14,500

56. An insurance salesman uses the graph below to determine life insurance costs.

Life Insurance Rates

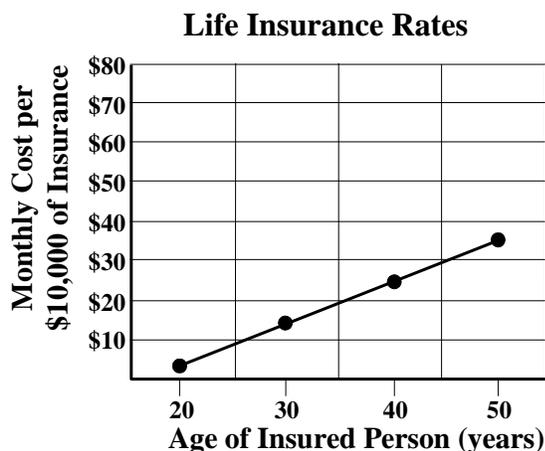The *y*-axis shows the monthly cost for every $10,000 of insurance purchased. Which is closest to the monthly cost for $100,000 of life insurance for a person who is 30 years of age?

A $15

B $30

C $150

D $300

Objective 5.2a

57. Lynn's last eight homework grades are listed below.

90, 78, 91, 85, 93, 94, 95, 96

What is the median of the list of grades?

A 82

B 90

C 92

D 93

58. For which data set is the median greater than the mode?

A   10, 7, 5, 3, 10
B   26, 31, 28, 26, 22
C   9, 0, 1, 9, 3
D   16, 12, 21, 12, 14

Objective 5.2b

59. If the number 21 is added to the set of data below, how is the mean affected?

18, 22, 20, 17, 28

A The mean increases by 1.

B The mean remains the same.

C The mean decreases by 1.

D The mean becomes the same as the mode.

60. Kyle's first four quizzes had a mean score of 80%. If he scores 100% on his next quiz, what will be his mean quiz score for the first five quizzes?

A   80%

B   82%

C   84%

D   86%

61. Jane has the following grades on her first four math tests.

88, 92, 86, 84

In order to have a mean of 90, what does Jane need to make on her fifth math test?

A 90

B 95

C 98

D 100

Answer sheet

1. B	32. C
2. C	33. C
3. C	34. A
4. D	35. A
5. D	36. B
6. A	37. C
7. A	38. C
8. D	39. B
9. B	40. C
10. B	41. D
11. A	42. B
12. B	43. A
13. D	44. B
14. B	45. D
15. A	46. B
16. D	47. C
17. B	48. C
18. D	49. A
19. B	50. B
20. B	51. D
21. B	52. D
22. C	53. D
23. B	54. A
24. D	55. C
25. C	56. C
26. B	57. C
27. B	58. D
28. C	59. B
29. D	60. C
30. C	61. D
31. B	