

Summer Assignment for Incoming Geometry Students**Multiple Choice**

Identify the choice that best completes the statement or answers the question.

Solve the equation.

_____ **1** $8x - 9 = x + 9$

A. $\frac{18}{7}$

B. $-\frac{18}{7}$

C. $\frac{7}{18}$

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

_____ **2** A rental car agency charges \$17 per day plus \$.07 per mile to rent a certain car. Another agency charges \$22 per day plus \$.05 per mile to rent the same type of car. How many miles per day will have to be driven for the cost of a car from the first agency to equal the cost of a car from the second agency?

A. 195 miles per day

C. 2500 miles per day

B. 250 miles per day

D. 1950 miles per day

_____ **3** In 2 hours a candymaker can produce 80 boxes that each contain 10 pieces of candy. How many pieces of candy does the candymaker produce in 6 hours?

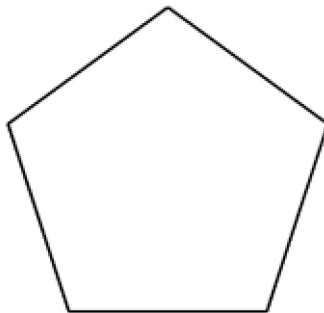
A. 480 pieces

C. 4800 pieces

B. 2400 pieces

D. 600 pieces

_____ **4** The figure below represents a building in the shape of a pentagon. Using the scale 1 inch = 94 feet, what is the perimeter of the building?



4 inches

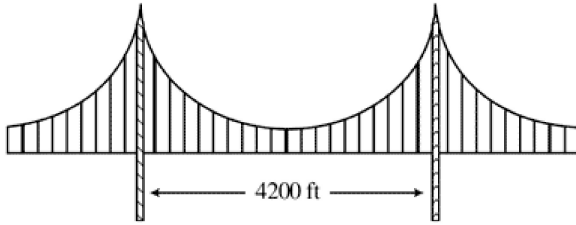
A. 376 feet

C. 1880 feet

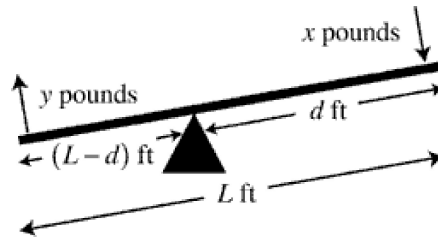
B. 470 feet

D. 1504 feet

- _____ **5** A scale model of the Golden Gate Bridge in San Francisco Bay has a main span that is 20 inches long. If the main span of the bridge is 4200 feet long, what is the scale of the model?



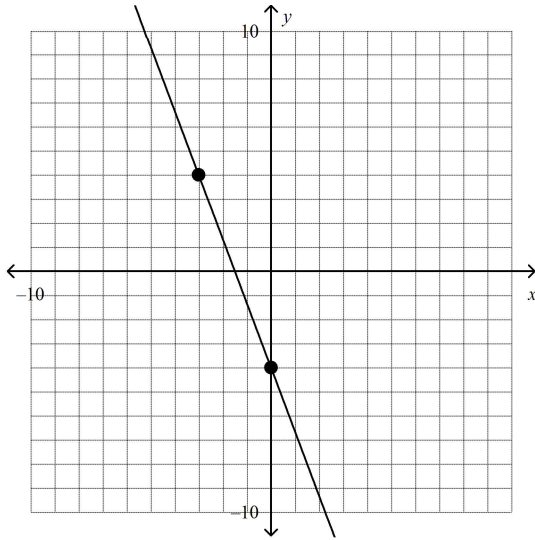
- A. 1 ft : 3500 ft
 B. 1 ft : 2520 ft
 C. 1 ft : 210 ft
 D. 1 ft : 350 ft
- _____ **6** Solve $y = \frac{5}{8}b + 10$ for b .
- A. $b = -\frac{8}{5}y + 16$
 B. $b = \frac{8}{5}y - 16$
 C. $b = \frac{5}{8}y - 10$
 D. $b = -\frac{5}{8}y + 10$
- _____ **7** When x pounds of force is applied to one end of a lever that is L feet long, the resulting force y on the other end is determined by the distance between the fulcrum (the lever's pivot) and the end of the lever on which the x pounds of force is exerted.



The formula relating the forces is $xd = y(L - d)$. What formula can you use to find the length of the lever?

- A. $L = \frac{xd}{y} + d$
 B. $L = \frac{xd + d}{y}$
 C. $L = \frac{xd - yd}{y}$
 D. $L = \frac{yd}{x} + d$
- _____ **8** Choose an equation, in slope-intercept form, of a line with a slope 7 and a y -intercept of -9 .
- A. $y = 7x - 9$
 B. $y = 7x + 9$
 C. $x = 7y - 9$
 D. $y = \frac{1}{7}x - 9$

- 9 Write an equation in slope-intercept form of the graph.



- A. $y = -\frac{8}{3}x - 4$ C. $y = -\frac{3}{8}x - 4$
 B. $y = \frac{8}{3}x - 4$ D. $y = \frac{3}{8}x - 4$

- 10 The cost of a school banquet is \$95 plus \$15 for each person attending. Write an equation that gives total cost as a function of the number of people attending. What is the cost for 77 people?

- A. $y = 15x - 95$; \$1060 C. $y = 15x + 95$; \$1250
 B. $y = 95x + 15$; \$7330 D. $y = 95x - 15$; \$7300

- 11 The cost of a company's winter banquet is \$65 plus \$15 for each person attending. Determine the equation that models this problem, where x is the number of people attending and y is the cost. What is the cost for 44 people?

- A. $y = 65x - 15$; \$2845 C. $y = 15x - 65$; \$595
 B. $y = 65x + 15$; \$2875 D. $y = 15x + 65$; \$725

- 12 Write an equation, in point-slope form, of the line that passes through the point $(6, -5)$ and has the slope $\frac{1}{2}$.

- A. $y + 5 = \frac{1}{2}(x - 6)$ C. $y - 5 = \frac{1}{2}(x + 6)$
 B. $y - 6 = \frac{1}{2}(x + 5)$ D. $y + 6 = \frac{1}{2}(x - 5)$

_____ **13** Write an equation in point-slope form of the line that passes through the points $(-5, -4)$ and $(6, 3)$.

A. $y + 4 = \frac{7}{11}(x + 5)$

C. $y + 5 = \frac{7}{11}(x + 4)$

B. $y + 4 = \frac{11}{7}(x + 5)$

D. $y + 5 = \frac{11}{7}(x + 4)$

_____ **14** Write an equation of the line, in point-slope form, that passes through the points $(-7, 2)$ and $(3, -2)$. Use $(-7, 2)$ as the point (x_1, y_1) .

A. $y - 2 = -\frac{2}{5}(x + 7)$

C. $y - 7 = -\frac{2}{5}(x + 2)$

B. $y - 2 = -\frac{5}{2}(x + 7)$

D. $y - 7 = -\frac{5}{2}(x + 2)$

_____ **15** The function $f(x) = 15 + 10(x - 1)$ represents the cost (in dollars) of ordering x t-shirts printed with a specialty logo. Which description best fits the function?

A. The cost includes a \$15 fee plus \$10 for each t-shirt.

B. The cost is \$10 for each t-shirt.

C. The cost is \$15 for the first t-shirt and \$10 for each additional t-shirt.

D. The cost is \$15 for each t-shirt.

_____ **16** Write an equation of the line that passes through $(-5, -1)$ and is parallel to the line $y = 4x - 6$.

A. $y = 4x + 19$

C. $y = -5x + 19$

B. $y = 4x - 6$

D. $y = -5x - 6$

_____ **17** Write an equation of the line that goes through the point $(3, 7)$ and is perpendicular to the line $y = -3x + 6$.

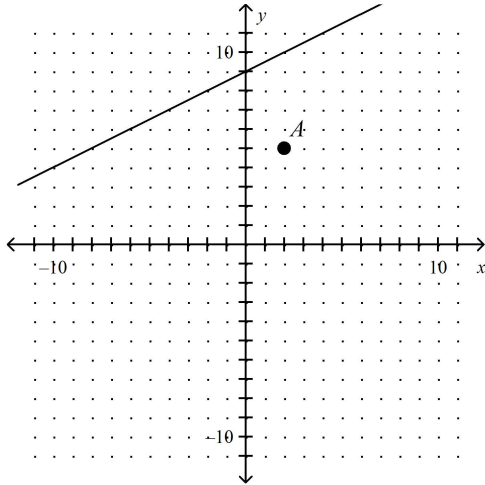
A. $y = \frac{1}{3}x + 6$

C. $y = 3x + 2$

B. $y = -\frac{1}{3}x + 6$

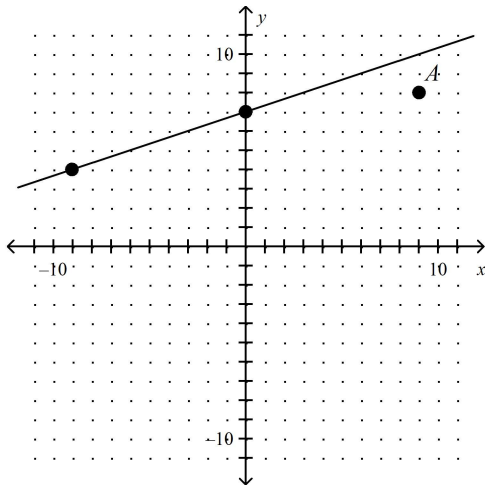
D. $y = -3x + 16$

- 18 Find the equation of the line that passes through point A and is perpendicular to the line shown in the graph below.



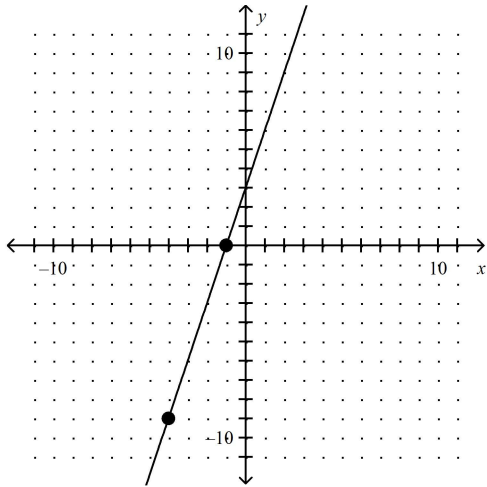
- A. $y = -2x + 9$ C. $y = \frac{1}{2}x + 9$
 B. $y = \frac{1}{2}x - 9$ D. $y = -2x - 9$

- 19 Find the equation of the line that is parallel to the line in the graph and passes through point A .



- A. $y = \frac{1}{3}x + 5$ C. $y = -\frac{1}{3}x + 7$
 B. $y = 3x + 5$ D. $y = 3x + 7$

_____ **20** Which of the following lines is NOT parallel to the line shown in the graph?

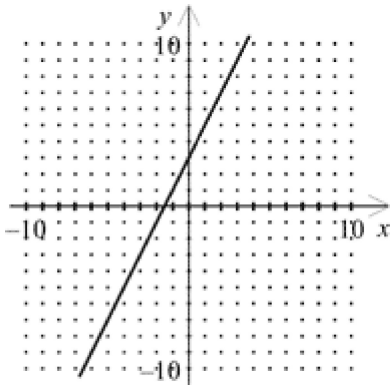


- A. $3x + y = 3$ C. $-12x + 4y = 9$
 B. $y - 3x = 9$ D. $3x - y = 3$

_____ **21** Which pair of lines would be perpendicular when graphed?

- A. $y = 3, x = 5$ C. $y = 2x, y = \frac{1}{2}x$
 B. $x = 4, y = x$ D. $y = 3, y = x$

_____ **22** The line $y = 2x + 3$ is graphed below.



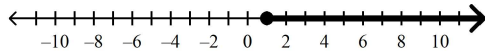
Are the lines $y = 2x + 3$ and $2y - 4x = 6$ parallel, perpendicular, neither parallel nor perpendicular, or the same line?

- A. the same line C. perpendicular
 B. neither parallel nor perpendicular D. parallel

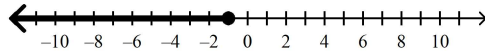
Solve and graph.

_____ **23** $-7(4x - 3) \leq -7$

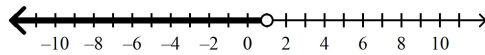
A. $x \geq 1$



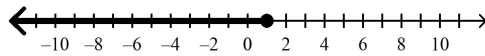
B. $x \leq -1$



C. $x < 1$



D. $x \leq 1$



Solve.

_____ **24** $13b - 6 \leq 14b + 8$

A. $b \geq 2$

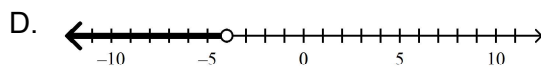
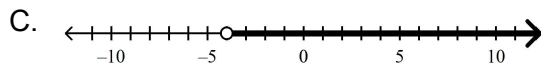
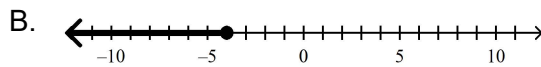
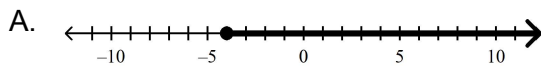
B. $b \geq -14$

C. $b \leq 14$

D. $b = 2$

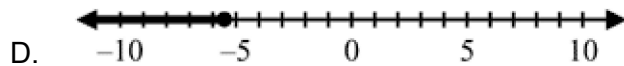
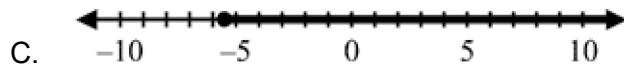
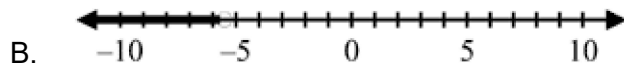
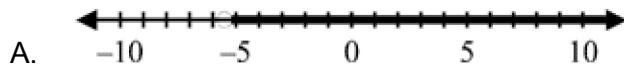
Solve the inequality.

_____ **25** $4x + 4 \geq 2(x - 2)$. Graph your solution.



Solve and graph the inequality.

_____ **26** $5x + 2 < 3(x - 3)$



_____ **27** Ho sells ice cream cones at the county fair. She has to rent the equipment for \$48 and spend \$0.53 on ingredients for each cone. Write an inequality to represent the possible numbers of ice cream cones that she must sell at \$1.40 each in order to make a profit.

A. $x > 57$

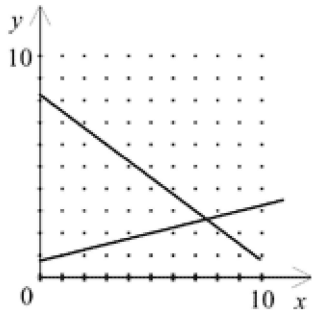
B. $x > 55$

C. $x > 58$

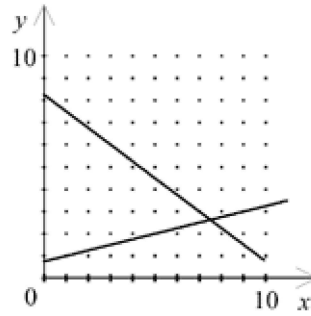
D. $x > 56$

28 Lena made 32 ounces of a fruit drink mix using pineapple juice and grapefruit juice. The number of ounces of pineapple juice in the fruit drink mix is 5 more than 2 times the number of ounces of grapefruit juice in the fruit drink mix. Which graph shows the number of ounces pineapple juice, x , and the number of ounces of grapefruit juice, y , in the fruit drink mix? What system of equations was used to create the graph?

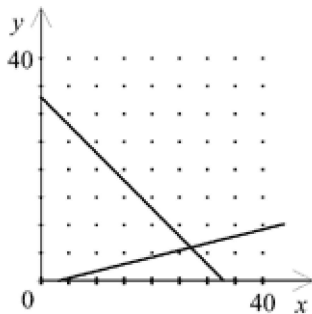
A. $x + y = 32$
 $x - 5 = 2y$



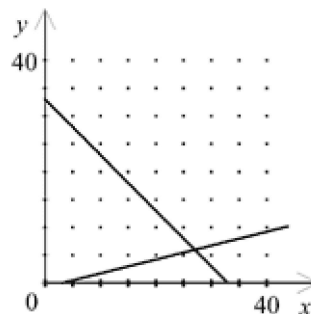
C. $5x + 2y = 32$
 $x - 5 = 2y$



B. $x + y = 32$
 $x + 5 = 2y$



D. $5x + 2y = 32$
 $x + 5 = 2y$



29 Marc sold 461 tickets for the school play. Student tickets cost \$3 and adult tickets cost \$4. Marc's sales totaled \$1624. How many adult tickets and how many student tickets did Marc sell?

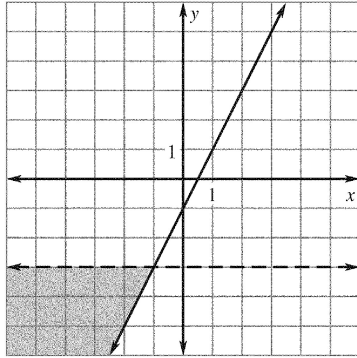
- A. 220 adult, 241 student
- B. 225 adult, 236 student

- C. 236 adult, 225 student
- D. 241 adult, 220 student

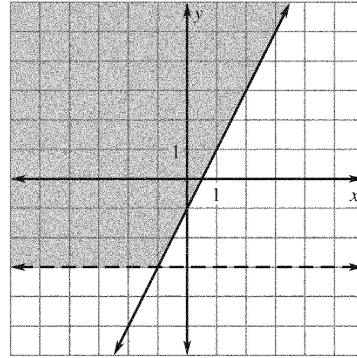
Graph the system of inequalities.

30 $y \leq 2x - 1$
 $y < -3$

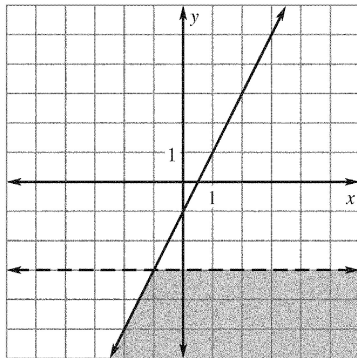
A.



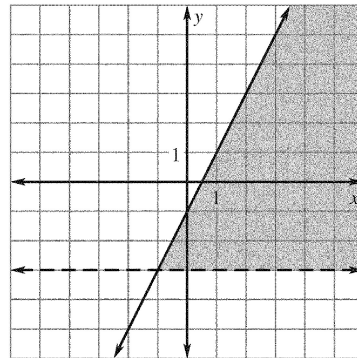
C.



B.



D.

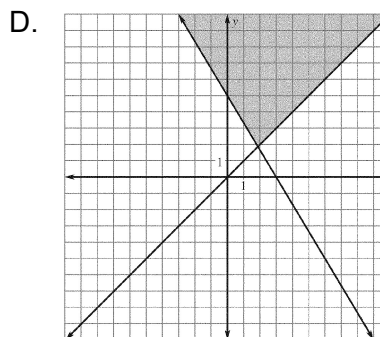
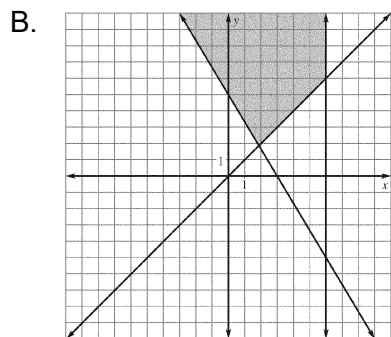
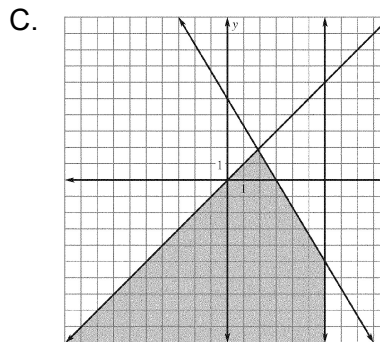
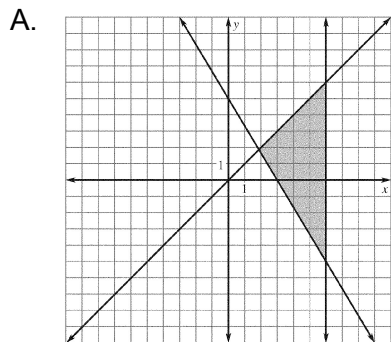


31 Graph the system of inequalities:

$$5x + 3y \geq 15,$$

$$x \geq y,$$

$$x \leq 6$$



Simplify:

32 $(-3c^8)(2c^6d^8)$

A. $-6c^{14}d^8$

B. $-6c^{48}d^8$

C. $6c^{48}d^{14}$

D. $6c^{14}d^{14}$

33 $(g^7)^6$

A. g^{42}

B. g^{13}

C. $g^{6/7}$

D. $g^{7/6}$

Simplify. Write your answer using exponents.

_____ **34** $(2qr^5)^3(qr)^6$

A. $2q^9r^{21}$

B. $2q^4r^{21}$

C. $8q^9r^{11}$

D. $8q^9r^{21}$

_____ **35** $(4t^2r^4)^3$

A. $64t^6r^{12}$

B. $-64t^6r^{12}$

C. $-64t^5r^7$

D. $12t^5r^7$

Simplify the expression using positive exponents.

_____ **36** $\left(\frac{-4}{q}\right)^8$

A. $\frac{32}{q^8}$

B. $\frac{65,536}{8q}$

C. $\frac{32}{8q}$

D. $\frac{65,536}{q^8}$

_____ **37** $\left(\frac{x^3}{y^8}\right)^4$

A. $\frac{x^{12}}{y^{32}}$

B. $\frac{x^7}{y^{12}}$

C. $x^{12} + y^{32}$

D. $\frac{x^{12}}{y^8}$

Simplify:

_____ **38** $\sqrt{300}$

A. $10\sqrt{30}$

B. $10\sqrt{3}$

C. $\sqrt{30}$

D. $3\sqrt{10}$

Simplify:

_____ **39** $\sqrt{10} \cdot \sqrt{4}$

A. $2\sqrt{10}$

B. $4\sqrt{5}$

C. $2\sqrt{5}$

D. $\sqrt{40}$

_____ **40** $11\sqrt{25}$

A. 137.5

B. 16

C. 55

D. 27.5

Simplify:

_____ **41** $\sqrt{\frac{49}{100}}$

A. $\frac{7}{50}$

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

C. $\frac{7}{100}$

D. $\frac{7}{10}$

Simplify:

_____ **42** $\sqrt{32} + \sqrt{72}$

A. $2\sqrt{10}$

B. $46\sqrt{2}$

C. $\sqrt{104}$

D. $10\sqrt{2}$

_____ **43** $2\sqrt{6} - \sqrt{81} - 4\sqrt{24}$

A. $-6\sqrt{6} - 9$

B. $-11\sqrt{6} - 9 - 4\sqrt{24}$

C. $-5\sqrt{24}$

D. $-15\sqrt{6}$

_____ **44** Simplify $\sqrt[3]{-8} \cdot \sqrt[3]{27}$.

A. 6

B. -6

C. 18

D. -18

_____ **45** Simplify $\sqrt[3]{\frac{x}{64}}$.

A. $\frac{\sqrt[3]{x}}{4}$

B. $\frac{\sqrt[3]{x}}{21}$

C. $\frac{x}{4}$

D. $\frac{x}{3}$

____ **46** Simplify $\frac{4}{\sqrt[3]{2}}$.

A. $\frac{4\sqrt[3]{2}}{2}$

B. $2\sqrt[3]{2}$

C. $2\sqrt[3]{4}$

D. $\frac{4\sqrt[3]{4}}{2}$

____ **47** Simplify $5\sqrt[3]{2x} + 3\sqrt[3]{2x}$.

A. $8x\sqrt[3]{2}$

B. $8\sqrt[3]{x}$

C. $8\sqrt[3]{2x}$

D. $8\sqrt[3]{4x}$

____ **48** Simplify $\sqrt[3]{54} - 5\sqrt[3]{2}$.

A. $2\sqrt[3]{2}$

B. $-2\sqrt[3]{2}$

C. $2\sqrt[3]{3}$

D. $-2\sqrt[3]{3}$

____ **49** Simplify $\sqrt[3]{2}(6 + \sqrt[3]{32})$.

A. $8\sqrt[3]{2}$

B. $10\sqrt[3]{2}$

C. $6\sqrt[3]{2} + 4$

D. $\sqrt[3]{12} + 4$

____ **50** Simplify $(4 + \sqrt[3]{3x})(3 - \sqrt[3]{3x})$.

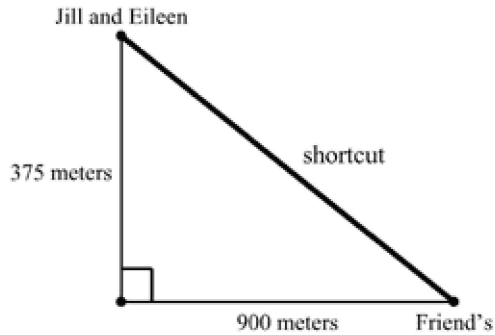
A. $12 - \sqrt[3]{3x} - \sqrt[3]{9x^2}$

B. $12 + \sqrt[3]{3x} - \sqrt[3]{9x^2}$

C. $12 - \sqrt[3]{12x} + \sqrt[3]{9x} - \sqrt[3]{9x^2}$

D. $12 + \sqrt[3]{12x} - \sqrt[3]{9x} - \sqrt[3]{9x^2}$

- _____ **51** Jill and Eileen decided to take a shortcut through the woods to go to their friend's house. When they went home they decided to take the long way around the woods to avoid getting blackberry vine scratches. If the length of the shortcut is equal to the square root of the sum of the squares of the other two sides, what total distance did they walk?



- A. 1912 meters
B. 3225 meters
C. 2550 meters
D. 2250 meters
- _____ **52** A cable 28 feet long runs from the top of a utility pole to a point on the ground 13 feet from the base of the pole. How tall is the utility pole?
- A. 15 ft B. 20 ft C. 30.87 ft D. 24.8 ft
- _____ **53** Which set of side lengths *cannot* form a right triangle?
- A. 64 mm, 118 mm, 136 mm
B. 16 mm, 30 mm, 34 mm
C. 48 mm, 90 mm, 102 mm
D. $\frac{16}{5}$ mm, 6 mm, $\frac{34}{5}$ mm
- _____ **54** A cable 39 m long runs from the top of a utility pole to a point on the ground 24 m from the base of the pole. How tall is the utility pole, to the nearest tenth of a meter?
- A. 45.8 m B. 945 m C. 63 m D. 30.7 m

Solve the equation:

_____ **55** $\frac{x-6}{x-3} = \frac{x+8}{x-2}$

- A. $\frac{36}{13}$
B. $\frac{12}{13}$
C. 12
D. 4

_____ **56** $\frac{1}{w+3} - \frac{3}{w-2} = 0$

A. $-\frac{11}{2}$

B. $-\frac{7}{2}$

C. $\frac{11}{4}$

D. none of these

Solve the equation and check your answer.

_____ **57** $\frac{x}{x-8} + \frac{6}{x-4} = \frac{x^2}{x^2 - 12x + 32}$

A. 20

B. 8

C. 24

D. 27

Numeric Response

58 GRIDDED RESPONSE

A group is going on a boat tour. The cost, in dollars, of the tour for groups larger than 25 is given by the equation $C = 80 + 13n$, where n is the number of people in the group. If the cost of the tour is \$600, how many are in the group?

⊖	/	/	/	/	
•	•	•	•	•	•
0	0	0	0	0	0
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9

Short Answer

Solve the equation.

59 $5x + 14 - 2x = 9 - (4x + 2)$

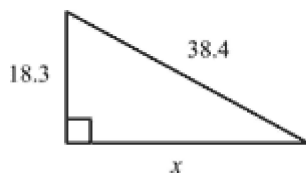
- 60** One hiking club charges \$20 to become a member and \$5 to participate on each hike. Another club charges no membership fee, but charges \$7 to participate on each hike. How many hikes must you go on to make the first club more economical?

61 Solve the inequality $1 - \frac{1}{3}x > 3$.

Solve the inequality, if possible.

62 $20(x + 3) > 10(3x - 3)$

- 63** Find the length of the side of the triangle. Round your result to one decimal place.



- 64** Is a triangle with sides of length 10 cm, 24 cm, and 27 cm a right triangle?
- 65** A cable 29 m long runs from the top of a utility pole to a point on the ground 14 m from the base of the pole. How tall is the utility pole, to the nearest tenth of a meter?