

1. Simplify the expression below using order of operations.

$$8^2 + 8 - 7 \times 7$$

2. Simplify the expression below using order of operations.

$$4 - \frac{7}{(2^3 - 1^3)}$$

3. Simplify the expression below using order of operations.

$$(4 \times 2^3) \div 1 - 3$$

4. Solve for  $x$ :

$$x + 9 = 6x - 31$$

5. Solve for  $x$ :

$$-10x + 2 = -9x + 11$$

6. Solve for  $x$ :

$$12x + 2 = 8x + 18$$

7. Solve for  $x$ :

$$-4x + 3 = x - 27$$

8. Solve for  $x$ :

$$-11x - 4 = -6x - 9$$

9. Find the slope of the line represented by the equation below.

$$-16 = 4x + 4y$$

10. Find the y-intercept of the line represented by the equation below.

$$-5y - x = 15$$

11. Find the y-intercept of the line represented by the equation below.

$$4 = -2x - 2y$$

**12.** Yaritza is the oldest of four siblings whose ages are consecutive integers. If the sum of their ages is 126, find Yaritza's age.

**13.** The lengths of the three sides of a triangle (in inches) are consecutive odd integers. If the perimeter is 75 inches, find the value of the middle of the three side lengths.

**14.** The length and width of a rectangle are consecutive even integers. The perimeter of the rectangle is 60 meters. Find the length and width of the rectangle.

**15.** Find the slope of the line represented by the equation below.

$$y = 1 + \frac{5}{4}x$$

**16.** Find the y-intercept of the line represented by the equation below.

$$y = 5 + x$$

**Summer Algebra Review. Show your work and solve each problem. Name** \_\_\_\_\_

**17.** Find the y-intercept of the line represented by the equation below.

$$4 + x = y$$

**18.** 231 is what percent of 420?

**19.** What is 96% of 25?

**20.** 102 is what percent of 150?

**21.** Rewrite this percent problem as a fraction problem in simplest terms.

Find 10% of 300.

**22.** Rewrite this fraction problem as a percent problem.

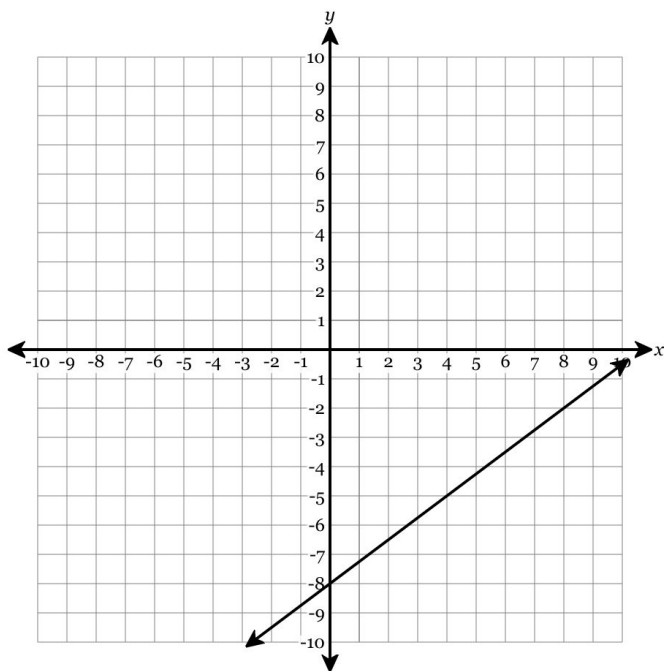
Find  $\frac{1}{2}$  of 46.

**23.** Rewrite this percent problem as a fraction problem in simplest terms.

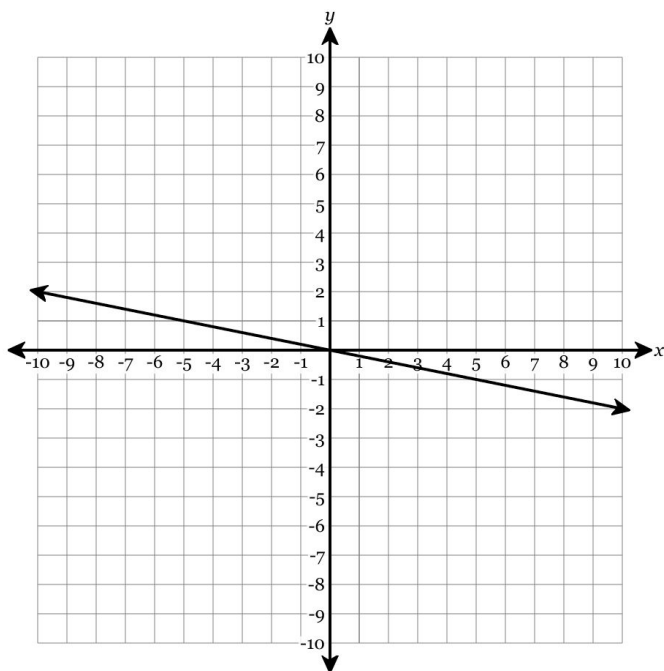
Find 37.5% of 88.

**Summer Algebra Review. Show your work and solve each problem. Name \_\_\_\_\_**

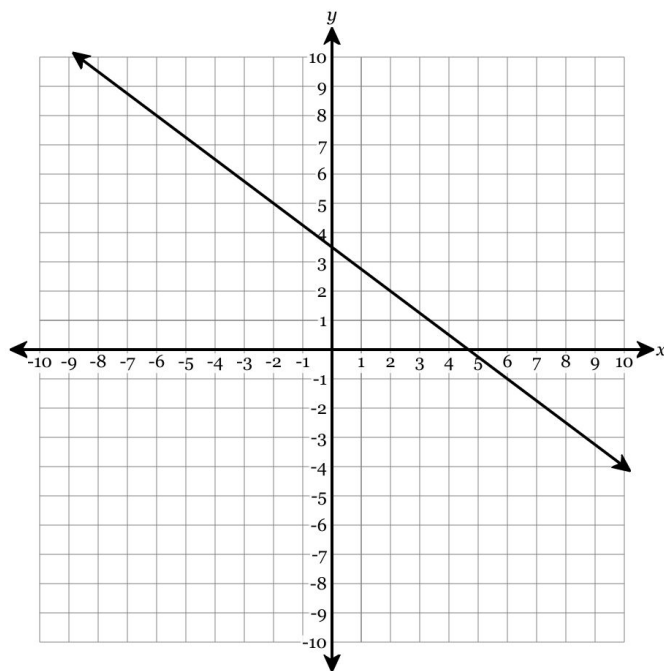
**24.** Draw a line representing the “rise” and a line representing the “run” of the line. State the slope of the line in simplest form.



**25.** Draw a line representing the “rise” and a line representing the “run” of the line. State the slope of the line in simplest form.



**26.** Draw a line representing the “rise” and a line representing the “run” of the line. State the slope of the line in simplest form.



**27.** What is the slope of the line that passes through the points  $(4, 4)$  and  $(-4, 8)$ ? Write your answer in *simplest form*.

**28.** What is the slope of the line that passes through the points  $(-4, -7)$  and  $(-34, -32)$ ? Write your answer in *simplest form*.

**29.** What is the slope of the line that passes through the points  $(-4, 4)$  and  $(0, 6)$ ? Write your answer in *simplest form*.

**Summer Algebra Review. Show your work and solve each problem. Name \_\_\_\_\_**

**30.** Express in simplest radical form:  $\sqrt{160}$

**31.** Express in simplest radical form:  $\sqrt{32}$

**32.** Express in simplest radical form:  $\sqrt{98}$

**33.** Put the following equation of a line into slope-intercept form, simplifying all fractions.

$$4x + 4y = -20$$

**34.** Put the following equation of a line into slope-intercept form, simplifying all fractions.

$$4y - 2x = -36$$

**35.** Put the following equation of a line into slope-intercept form, simplifying all fractions.

$$x - 6y = -42$$

**36.** Combine the following fractions and express in simplified form.

$$\frac{x}{9} + \frac{3}{7}$$

37. Combine the following fractions and express in simplified form.

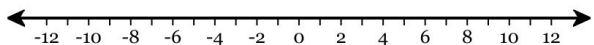
$$\frac{7x - 1}{7x} + \frac{7x + 9}{7x}$$

38. Combine the following fractions and express in simplified form.

$$\frac{-2}{3} - \frac{-2}{3}$$

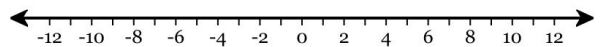
39. Solve the inequality and graph the solution on the line provided.

$$7x - 16 \geq -44$$



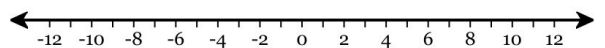
40. Solve the inequality and graph the solution on the line provided.

$$-14 + 2x > -30$$

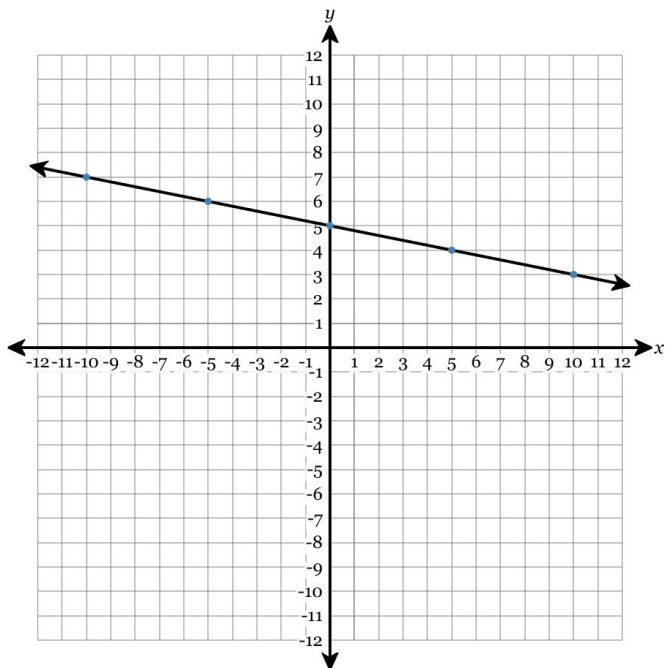


41. Solve the inequality and graph the solution on the line provided.

$$-15 + 3x < 3$$



42. Write the equation of the line in fully simplified slope-intercept form.



43. Simplify to a single power of 4:

$$(4^3)^5$$

44. Simplify to a single power of 2:

$$2^2 \times 2^5$$

45. Simplify to a single power of 3:

$$\frac{3^8}{3^2}$$

46. Simplify to a single power of 3:

$$\frac{3^5}{3^3}$$

47. Simplify to a single power of 5:

$$5^5 \times 5^6$$

48. Given  $f(x) = 3x + 5$ , find  $f(-5)$ .

49. Given  $f(x) = -x^2 + 6x + 3$ , find  $f(-8)$

**Summer Algebra Review. Show your work and solve each problem. Name \_\_\_\_\_**

**50.** Simplify the expression below using order of operations.

$$-1 \times (3.8 + 2.1) - 1^3$$

**51.** A bakery sold a total of 180 cupcakes in a day, and 63 of them were mocha flavored. What percentage of cupcakes sold that day were mocha flavored?

**52.** A university's freshman class has 2400 students. 840 of those students are majoring in Engineering. What percentage of the freshman class are Engineering majors?

**53.** A bakery sold a total of 60 cupcakes in a day, and 27 of them were chocolate flavored. What percentage of cupcakes sold that day were chocolate flavored?

**54.** What is an equation of the line that passes through the points  $(-6, -4)$  and  $(7, -4)$ ?

**55.** What is an equation of the line that passes through the points  $(2, 4)$  and  $(2, -3)$ ?

**56.** What is an equation of the line that passes through the points  $(-5, 8)$  and  $(5, -4)$ ?

57. Express in simplest radical form.

$$-5\sqrt{63} + 6\sqrt{7}$$

58. Rewrite in simplest terms:

$$0.7(-2v - 0.3) + 0.1(0.5v + 5)$$

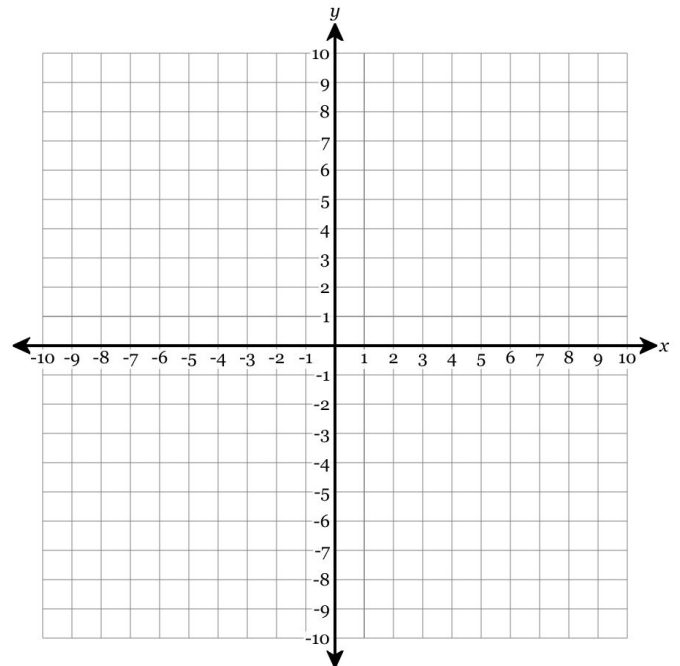
59. Rewrite in simplest terms:

$$8(-0.4k - 0.4) - 8(-0.6k - 0.9)$$

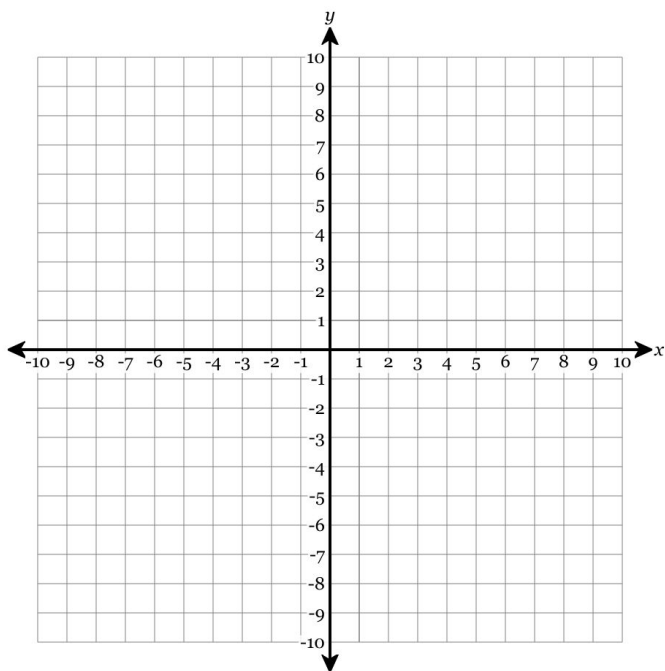
60. Rewrite in simplest terms:

$$-0.9(-2w + 0.8) + 0.1(-0.5w + 2)$$

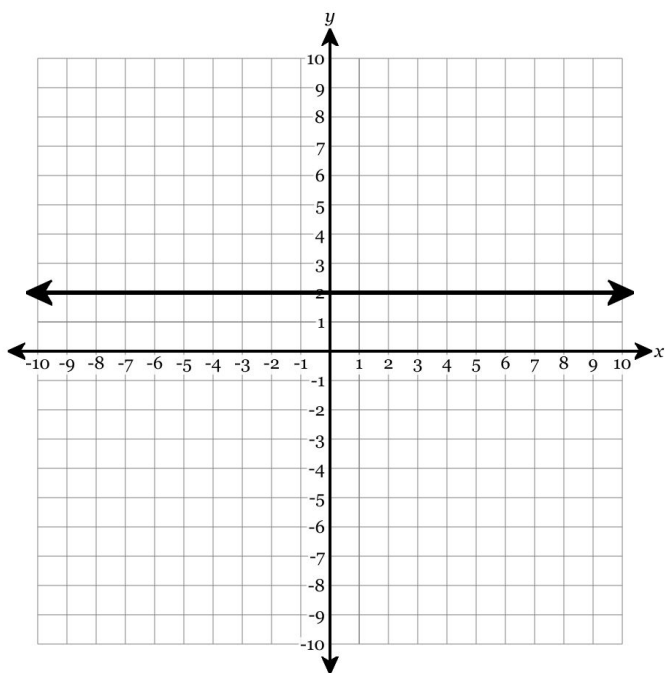
61. Graph the line  $x = -5$  on the axes shown below.



62. Graph the line  $y = -5$  on the axes shown below.



63. Write the equation of the line graphed below in simplest form.



64. Solve for all values of  $x$ :

$$\frac{4x}{x+6} - 1 = \frac{3}{x+6}$$

65. Solve for all values of  $x$ :

$$1 - \frac{1}{x+9} = -\frac{x}{x+9}$$

66. Find the solution of the system of equations.

$$\begin{aligned} 5x + y &= 35 \\ -5x + 5y &= -5 \end{aligned}$$

67. Find the solution of the system of equations.

$$-8x + 7y = -2$$

$$-8x + 8y = 8$$

68. Write the number  $5.2 \times 10^2$  in standard form.

69. What is the quotient of  $5.67 \times 10^7$  and  $2.7 \times 10^4$  expressed in scientific notation?

70. Use the quadratic formula to solve. Express your answer in simplest form.

$$4a^2 + 16a + 20 = 5$$