

Name: \_\_\_\_\_ Class: \_\_\_\_\_ Date: \_\_\_\_\_

## Algebra II General Studies

### Summer Assignment

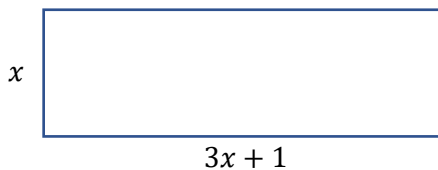
Evaluate the expression for the given values of the variables.

1.  $q - 10$  when  $q = 13$
2.  $4x^2 + 2$  when  $x = 2$
3.  $|x + 10|$  when  $x = -12$
4.  $\frac{5-x}{6}$  when  $x = 3$

Evaluate.

5.  $5^3$
6.  $16 \div (4 - 2) - 3$
7.  $-3 - (-8)$
8.  $-15 + (-10) + 25$

9. The perimeter of a rectangle is the sum of the lengths of its four sides. Find the perimeter of the rectangle below when  $x = 2$  ft.



Simplify.

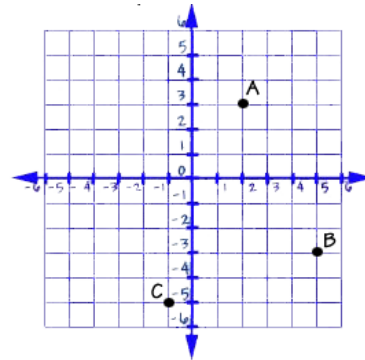
10.  $3(2 - 4x)$
11.  $7x + 5(1 - x)$

Solve the equation.

12.  $\frac{5}{x} = \frac{8}{15}$
13.  $x - 12 = 13$
14.  $-16x = 48$
15.  $-15x + 71 = 26$
16.  $3x - 8 = -3x + 4$
17.  $12(y - 3) = 15y$

Write the ordered pairs that correspond to the points labeled A, B, and C in the coordinate plane.

18.



Without plotting the point, tell whether it is in Quadrant I, Quadrant II, Quadrant III, or Quadrant IV.

19.  $(7, -10)$
20.  $(-4, -8)$

Find the slope of the line passing through the points.

given  $(x_1, y_1); (x_2, y_2)$       slope =  $\left(\frac{y_2 - y_1}{x_2 - x_1}\right)$

21.  $(3, 4), (1, 3)$

22.  $(2, 7), (5, 6)$

Find the slope and y-intercept.

23.  $y = 2x + 5$

24.  $y = 5 - 3x$

Write an equation of the line in slope-intercept form.

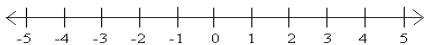
slope-intercept form:  $y = mx + b$

25. The slope is -5; the y-intercept is 7

26. The slope is 10; the y-intercept is -3

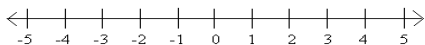
Graph the inequality.

27.  $x \geq -3$



Solve the inequality and graph the solution.

28.  $x - 3 \leq 1$



Solve each linear system using elimination.

29.  $x + y = 5$

$x - y = 3$

30.  $x + y = 5$

$2x + y = 6$

Simplify the expression, if possible. Write your answer as a power.

31.  $(2^3)^4$

32.  $(4xy^2)^2$

Simplify.

Then evaluate the expression when  $a = 1$  and  $b = 2$ .

33.  $b^3 \cdot b^4$

34.  $(a^2)^3$

Simplify the expression. The simplified expression should have no negative exponents.

35.  $\left(\frac{4}{x}\right)^3$

36.  $\frac{y^8}{y^9}$

Find the sum or difference.

37.  $(x^2 + 2x + 1) + (4x^2 + 5x + 3)$

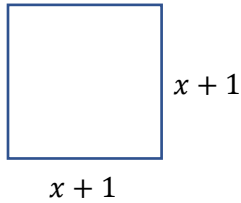
38.  $(3x^2 + 5x + 4) - (x^2 + 2x + 1)$

Find the product.

39.  $2x(3x - 5)$

40.  $(x + 3)(x + 2)$

41. Write an expression for the area of the figure.



Factor the expression.

42.  $x^2 + 3x + 2$

43.  $x^2 - 7x + 10$

Use the quadratic formula to solve the equation.

quadratic formula  $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

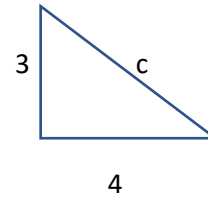
44.  $0 = x^2 + x - 20$

45.  $0 = x^2 - 5x + 6$

Find the missing length in the right triangle.

Pythagorean theorem:  $a^2 + b^2 = c^2$

46.



Find the distance between the two points.

distance =  $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

47.  $(5, 8), (2, 4)$

48.  $(7, 12), (1, 4)$

Find the midpoint between the two points.

midpoint =  $\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$

49.  $(2, 2), (6, 4)$

50.  $(2, 3), (4, 1)$