

Name _____

Period _____ Date _____

Ocean Township High School Mathematics Department

College Prep Math Summer Assignment

The purpose of this summer assignment is to review and strengthen mathematical skills essential for success in (insert course). The assignment consists of math concepts taught in previous courses you have taken.

TUTORIAL HELP SITES: if you have difficulty, the following websites provide tutorials and videos to assist as you review:

<https://www.khanacademy.org/>

<http://www.purplemath.com/>

1) Combine the like terms and put the polynomial in standard form.

$$8x^2 - 7x - 12x^3 + 3x^2 + 5x^3 + 3x$$

2) Solve the linear equation.

$$\frac{2x}{5} - 3 = 5$$

3) Solve the linear equation.

$$4x + 10x = -42$$

4) Solve the linear equation.

$$-2x - 4(3x - 7) = 0$$

5) Solve the linear equation.

$$4x - 3(2x + 3) + 7x = 45$$

6) Solve the linear equation.

$$5(x + 3) - 3(4x - 3) = 5x$$

7) Solve the linear equation.

$$2(x - 8) - 4x = 5x - x + 14$$

8) Solve the inequality & graph the solution set.

$$-4(x - 3) \leq -36$$



9) Solve the inequality & graph the solution set.

$$4x - 7 < 8x + 21$$



10) Solve the absolute value equation.

$$|x - 6| = 13$$

11) Solve the absolute value equation.

$$4|x - 3| - 2 = 22$$

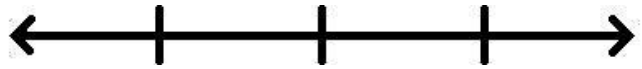
12) Solve the absolute value inequality & graph the solution set.

$$|x + 4| - 6 < -21$$



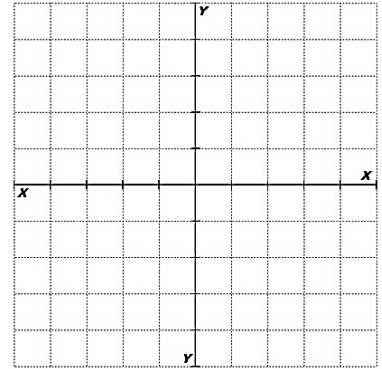
13) Solve the absolute value inequality & graph the solution set.

$$2|x - 2| + 2 < 12$$



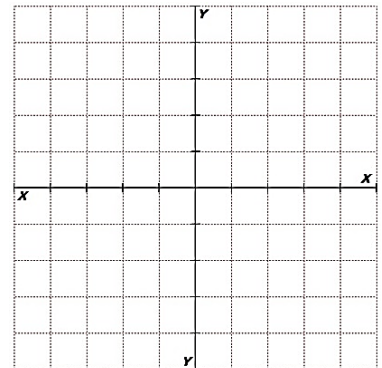
14) Graph the linear equation (slope-intercept form).

$$y = \frac{1}{2}x + 3$$



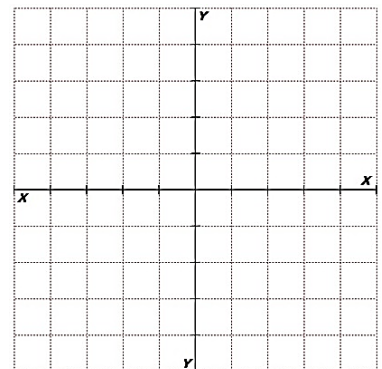
15) Graph the linear equation.

$$y = 2$$



16) Graph the linear equation.

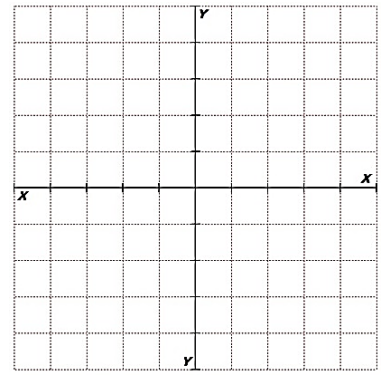
$$x = -1$$



17) Graph the linear equation (standard form).

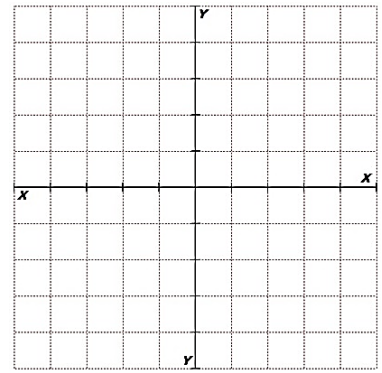
$$4x + 2y = 8$$

Hint: convert to slope-intercept form or use the x and y intercepts.



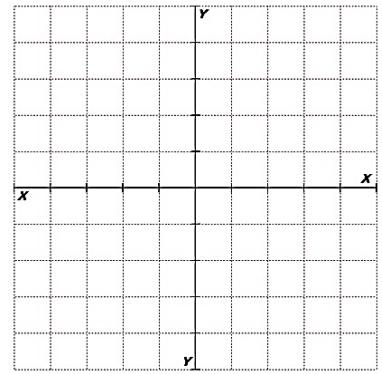
18) Graph the linear inequality (slope-intercept form).

$$y > -2x$$



19) Graph the linear inequality (slope-intercept form).

$$y \leq x + 1$$



20) Determine the slope of the line that goes through the points.

$$(-5, 6) \text{ \& } (2, -7)$$

21) Determine the slope of the line that goes through the points.

$$(2, 9) \text{ \& } (-3, 9)$$

22) Determine the slope of the line that goes through the points.

$$(3, -5) \text{ \& } (3, 4)$$

23) Find the equation for a line with the given properties.

$$\text{Slope} = 0 \text{ \& containing the point } (3,4)$$

24) Find the slope-intercept equation for a line with the given properties.

$$\text{Slope} = \frac{1}{3} \text{ \& containing the point } (-9,7)$$

25) Simplify using properties of exponents.

$$(5x^2y^5)(-2xy^8)$$

26) Simplify using properties of exponents.

$$\frac{27x^6y^7}{6xy^{15}}$$

27) Simplify using properties of exponents.

$$(2x^4y)^3(-9x^4y^3)$$

28) Multiply the polynomials.

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

29) Factor the polynomial (greatest common factor).

$$15x^3 + 21xy^2 - 3x^5$$

30) Factor the polynomial.

$$x^2 + x - 42$$

31) Factor the polynomial.

$$x^2 - 15x + 54$$

32) Factor the polynomial.

$$2x^2 - 7x - 15$$

33) Factor the polynomial.

$$25x^2 - 81$$

34) Factor the polynomial.

$$3x^2 - 21x + 36$$

35) Solve the system of equations by using substitution or elimination.

$$\begin{cases} x = 12 - 7y \\ 3x - 5y = 10 \end{cases}$$

36) Solve the system of equations by using substitution or elimination.

$$\begin{cases} x + y = 5 \\ x + 2y = 3 \end{cases}$$

37) Simplify the radical.

$$\sqrt{28x^2y^6z^3}$$

38) Multiply the radicals and simplify.

$$\sqrt{3x^3y} \cdot \sqrt{6x}$$

39) Multiply the radicals and simplify.

$$\sqrt{3y} \cdot \sqrt{3y}$$

40) Multiply the radicals and simplify.

$$3\sqrt[3]{16x^6} \cdot 2\sqrt[3]{4y^2}$$

41) Add the radicals.

$$7\sqrt{50} + 3\sqrt{18}$$

42) Evaluate the function notation.

$$f(x) = 2x^2 + 2x - 7$$

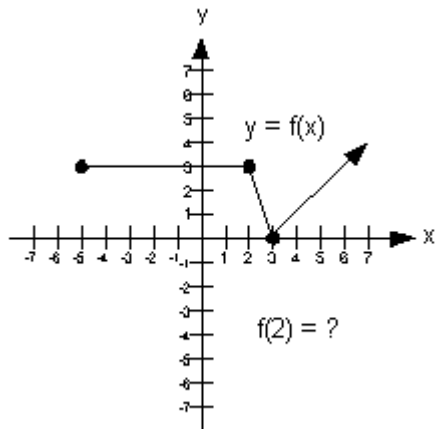
Find $f(-3) =$

43) Find the value of x in the function notation equation.

$$f(x) = 2x - 15$$

Find x so that $f(x) = -5$

Use the graph of $p(x)$ to answer the following questions:



44) Find $p(3)$

45) Find $p(-1)$

46) Find x so that $p(x) = 3$