_____ Math-3A

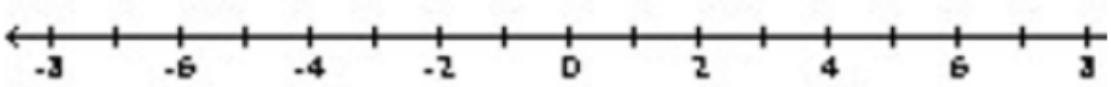
Name Pre-Math-1010 Assessment

1. Write the equation of a line, in slope-intercept form, that has a slope of 2 that passes through the point (-3, 4).

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

3. Solve the inequality. Graph the solution and write it in interval notation.

$$6 \leq -3x - 9 < 12$$



Interval Notation :_____

4. Find or determine the following for $4x + 6y = 24$:
   a. The x intercept as an ordered pair.

   b. The y intercept as an ordered pair.

   c. What is the slope of the line?

   d. Whether the function increasing or decreasing?
      Explain how you know (or how you arrived at your conclusion)

5. The value of a car that is two years old is $24,500. That same car will be worth only $20,100 when it is 6 years old. Assume the rate of depreciation is constant from year to year.
   a. Write a linear function labeled f(x) that represents the value of the car at any age.

   b. What does the slope of the line represent?

   c. What does the y-intercept represent?

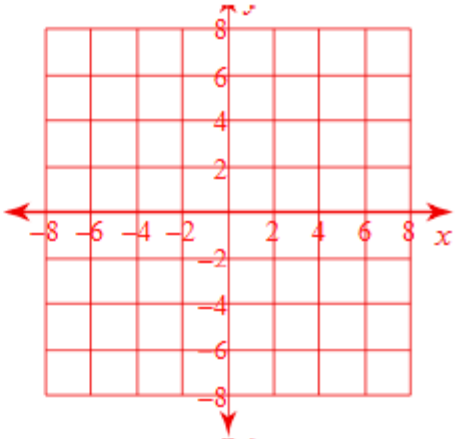
6. Convert $\sqrt[4]{16x^5y^7z}$ to exponential form. Simplify your answer so that it doesn't contain parentheses.

7. Graph the equation of each line. Identify the slope of each line. Then determine whether or not it is a function.

a. $y = -\frac{3}{2}x - 1$

Slope: $m =$ _____

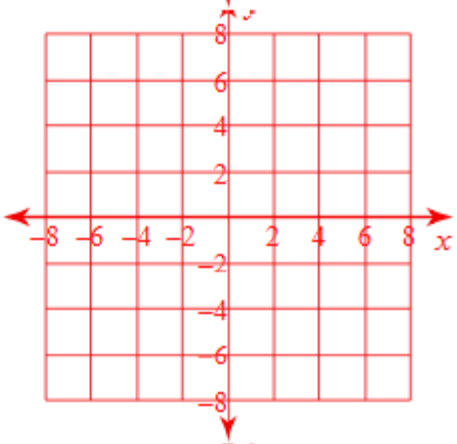
Function: Yes or No?



b. $y = -4$

Slope: $m =$ _____

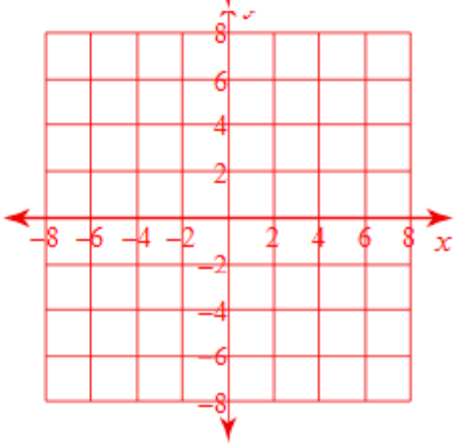
Function: Yes or No?



c. $x = 3$

Slope: $m =$ _____

Function: Yes or No?



8. Simplify $\sqrt[3]{3}\left(\sqrt[3]{18y}+\sqrt[3]{4}\right)+5\sqrt[3]{2y}$

9. If $f(x)=ax-2$ and $f(1)=8$ find the value of a.

10. Solve the system of equations.

$$\begin{aligned} 3x-y+z&=6\\ 2x+y-z&=-1\\ x+2y-3z&=-10 \end{aligned}$$

11. Simplify $\frac{12x^2y^5z^4}{18x^6z}$. Write with positive exponents only.

12. True or False: $(3x)^2 = 3x^2$. Explain how you arrived at your conclusion.

13. Simplify: $(-8)^{-\frac{2}{3}}$

14. Simplify then write in radical form. $y^{\frac{1}{6}} \cdot y^{\frac{5}{12}}$

15. Given $\sqrt{2x-5}+7=0$.

a. Solve for x.

b. Check or justify your solution.

16. Rationalize the denominator and write as a simplified fraction.

$$\frac{4x}{\sqrt{2x^3}}$$

17. Expand $(y+5)^2$

18. Divide.

$$\frac{m^3+5m^2-23m+16}{m-2}$$

19. For your high school graduation present you decide you are going to rent an exotic car. After careful consideration you decide on the Lamborghini Huracan because it has a 602 horsepower V10 engine and the Ferrari only has a V8. There are two rental agencies that have the Huracan. Agency 1 offers the Huracan for \$1275 a day plus a fee of \$5 per mile. Agency 2 offers it for \$1625 plus \$3 per mile. The respective cost equations are:

$$c = 5m + 1275$$
$$c = 3m + 1625$$

a. Solve the system of equations.

b. Explain what your solution represents.

20. A swimming pool in your back yard has a leak. It holes 1035 gallons of water but is leaking at a rate of 45 gallons per hour. The function describing the amount of water in the pool at time t, in hours since it started leaking is given by:

$$A(t) = 1035 - 45t$$

a. Find $A(12)$

b. Explain the meaning of $A(12)$.

c. What is the practical domain $A(t)$?

d. What is the practical range of $A(x)$?

21. Determine whether the function represented in the following table is linear or not. Explain your reasoning.

x	g(x)
4	20.4
5	22.1
6	23.8
7	25.5

22. When solving a system of two linear equations in two variables the final step yields the following equation: $0 = 5$.
    a. How many solutions does this system have?

    b. What would the graph of the two equations look like?