

Date: \_\_\_\_\_

## Lesson 8: Linear Functions Notes

Objective:

### Definitions/Conditions

Linear Equations: \_\_\_\_\_.

Conditions to be a Linear Equation: *The following must be true:*

- 1.)  $x$  and  $y$  do not have \_\_\_\_\_.
- 2.) The variables  $x$  and  $y$  are not in the \_\_\_\_\_.
- 3.)  $x$  and  $y$  do not have any other \_\_\_\_\_.

Standard Form:       **$Ax + By = C$**

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### Standard Form Examples

*Determine whether each of the following equations are linear. If they are, put them in standard form. If not, explain why.*

1.)  $6xy + y = 14$

2.)  $3x^2 + 4y = -17$

3.)  $2y = 10 - 7x$

4.)  $\frac{1}{3}y = -1$

5.)  $2x = -12 + 6y$

6.)  $-\frac{1}{2}x + 3y = 4$

## Intercepts

The  $x$  – coordinate of the point at which the graph of an equation crosses the  $x$  – axis is an

\_\_\_\_\_ .

Written as an ordered pair: \_\_\_\_\_

The  $y$  – coordinate of the point which the graph of an equation crosses the  $y$  – axis is an

\_\_\_\_\_ .

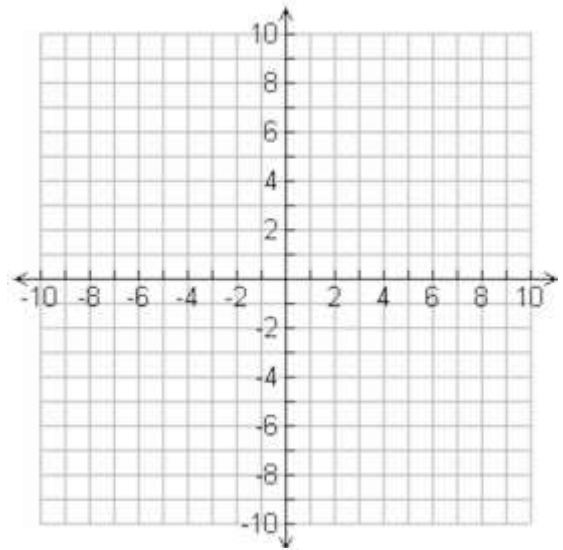
Written as an ordered pair: \_\_\_\_\_

Values of  $x$  which  $f(x) = 0$  are called \_\_\_\_\_ of the function  $f$ . **The zero of a linear function is the same as the  $x$  – intercept.**

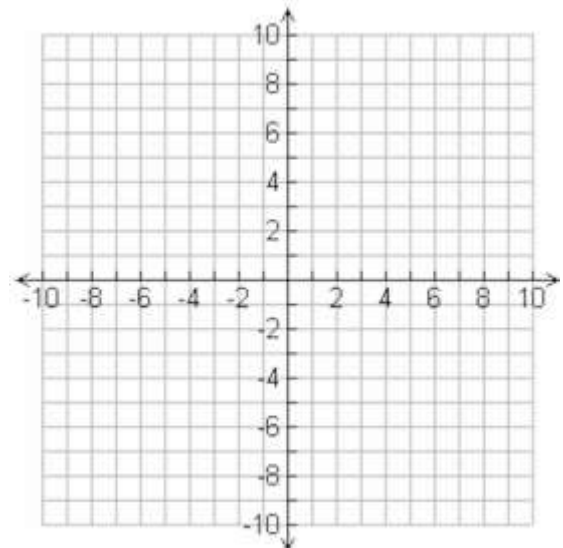
## Intercept Examples

Find the  $x$  and  $y$  – intercepts algebraically. Then graph using the intercepts.

1.  $3x + 2y = 12$



2.  $-x + y = -5$



3. John is trying to pay off his car. Each month he pays \$200. He needs to pay off his \$2000 loan. Use the graph below to identify the intercepts. Then, explain what each intercept means.

A.)  $x$  – intercept : \_\_\_\_\_

Meaning:

B.)  $y$  – intercept : \_\_\_\_\_

Meaning:

