

To Be or Not To Be A Linear Equation: That Is the Question—Pre-Test

1. Define the following terms in your own words:

- Linear equation **An equation where both variables have exponents of one.**
- X-intercept **A point, $(x, 0)$ that crosses the x-axis.**
- Y-intercept **A point, $(0, y)$ that crosses the y-axis.**

2. Determine if the following equations are linear or non-linear. Describe why or why not.

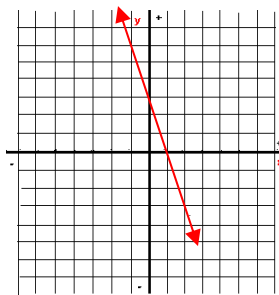
- $3x + 2y = 5$ **Linear, since all variables have an exponent of one.**
- $\frac{4}{x} + 6y = -2$ **Non-linear, since since x is in the denominator of the fraction.**
- $y = -7x + 3$ **Linear, since all variables have an exponent of one.**
- $x + y^2 + 2 = -1$ **Non-linear, since the exponent of y is not one.**

3. Find the x-intercept and y-intercept and graph the following equations.

a. $6x + 2y = 6$

x-intercept: $(1, 0)$

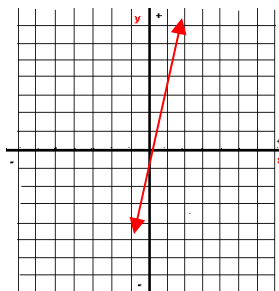
y-intercept: $(0, 3)$



b. $y = 4x$

x-intercept: $(0, 0)$

y-intercept: $(0, 0)$



To Be or Not To Be A Linear Equation: That Is the Question—Post-Test

1. Define the following terms in your own words:

- a. Linear equation **An equation where both variables have exponents of one.**
- b. X-intercept **A point, $(x, 0)$ that crosses the x-axis.**
- c. Y-intercept **A point, $(0, y)$ that crosses the y-axis.**

2. Determine if the following equations are linear or non-linear. Describe why or why not.

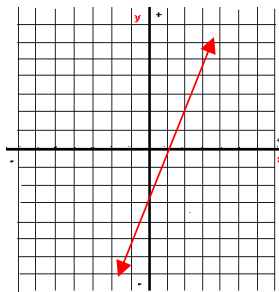
- a. $4x + 7y = 6$ **Linear, since all variables have an exponent of one.**
- b. $\frac{5}{x} - 2y = 9$ **Non-linear, since x is in the denominator of the fraction.**
- c. $y = -x - 19$ **Linear, since all variables have an exponent of one.**
- d. $2x - 4y^2 + 2 = 9$ **Non-linear, since the exponent of y is not one.**

3. Find the x-intercept and y-intercept and graph the following equations.

a. $6x - 2y = 6$

x-intercept: $(1, 0)$

y-intercept: $(0, -3)$



b. $y = 3x$

x-intercept: $(0, 0)$

y-intercept: $(0, 0)$

