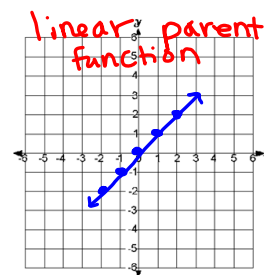


Problem of the Day: Find the range for  $f(x) = -3x + 5$  given  $d: \{-3, -1, 0, 2, 4\}$

Plan for the Day: Collect extra credit logic puzzles  
 Notes on linear equation introduction  
 More practice with linear equations  
 Objective: We will be able to identify if a graph or an equation is linear or not.  
 Good luck Volleyball at Palestine!!  
 Today is National Chocolate Covered Pretzel Day!!

Fill in the T-chart for the equation. Then graph the equation.

x	y
-2	-2
-1	-1
0	0
1	1
2	2



A linear equation is an equation whose solutions are ordered pairs that form a line when graphed on the coordinate grid.

The equation you just graphed is the linear parent equation function  $y = x$

All equations that make a straight line are based off of this equation.

You can tell an equation is linear if there are no exponents and  $x$  is not in the denominator of a fraction.

On a graph, a linear equation will form a straight line.

Examples:

$y = 3x$

$y = 3x + 6$

$2x + 3y = 5$   $y = \frac{x}{2}$

$x = 5$

$y = 2$

$y = 1/2x + 4$   $y = \frac{1}{2}x + 4$

Not examples:

$y = x^2$  - exponent

$y = 2x^2 + 4x - 7$  exponent

$y = 20/x$   $x$  in denominator

$xy = 8$   $x \cdot y$   $y = \frac{8}{x}$

Example 1: Determine if the following are linear equations.

a.  $y = \frac{2x}{3} + 8$  linear - no exponents, no  $x$  in denominator, no  $x \cdot y$

b.  $y = 4x$  linear - no exponents, no  $x$  in denominator, no  $x \cdot y$

c.  $\frac{1}{y} + \frac{2}{x} = 9$  non-linear -  $x$  in denominator

d.  $8x^2 - 7 = y$  non-linear exponent

e.  $4x - 3y = 12$  linear - no exponents, no  $x$  in denominator, no  $x \cdot y$

Example 2: Determine if the following are linear equations.

