

HW: Worksheet

Warm up:

Graph.

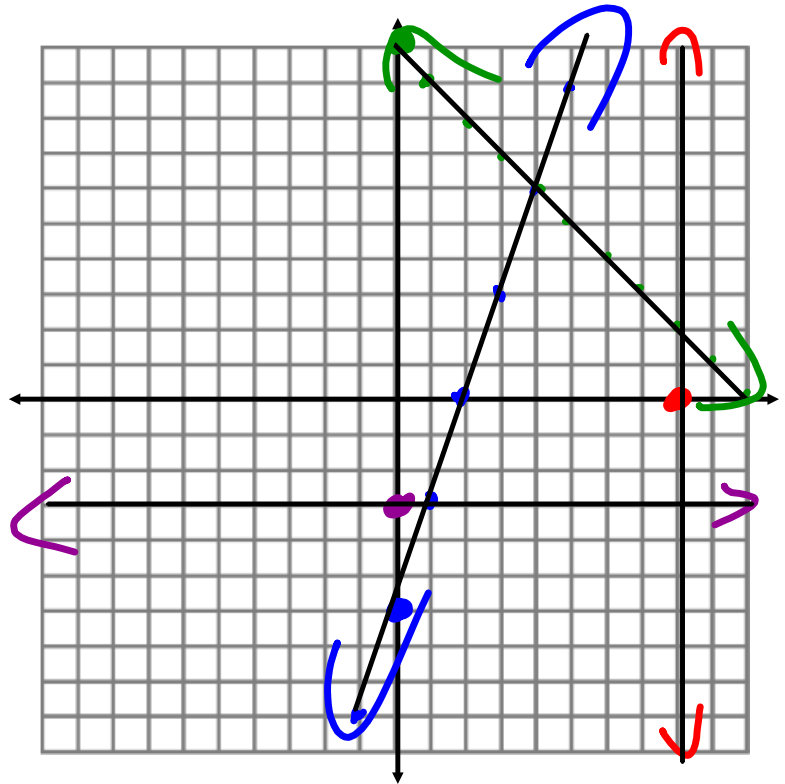
1) $y = 3x - 6$

2) $x + y = 10$

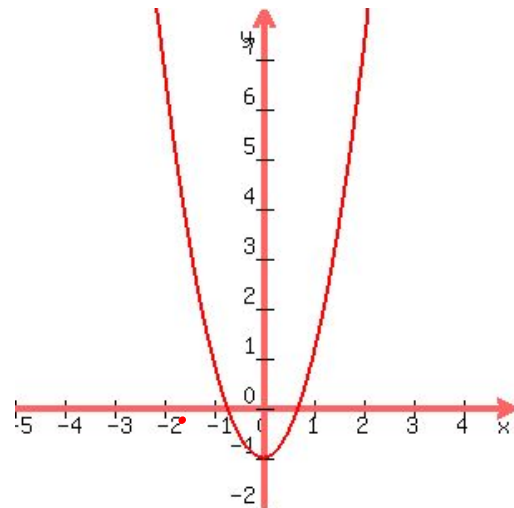
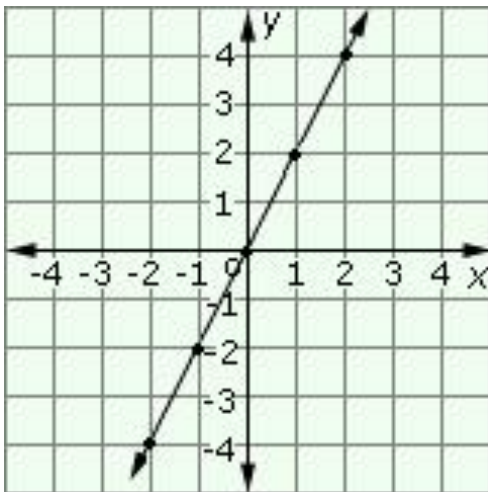
$$\begin{array}{r} -x \\ \hline y = -x + 10 \end{array}$$

3) $x = 8$

4) $y = -3$

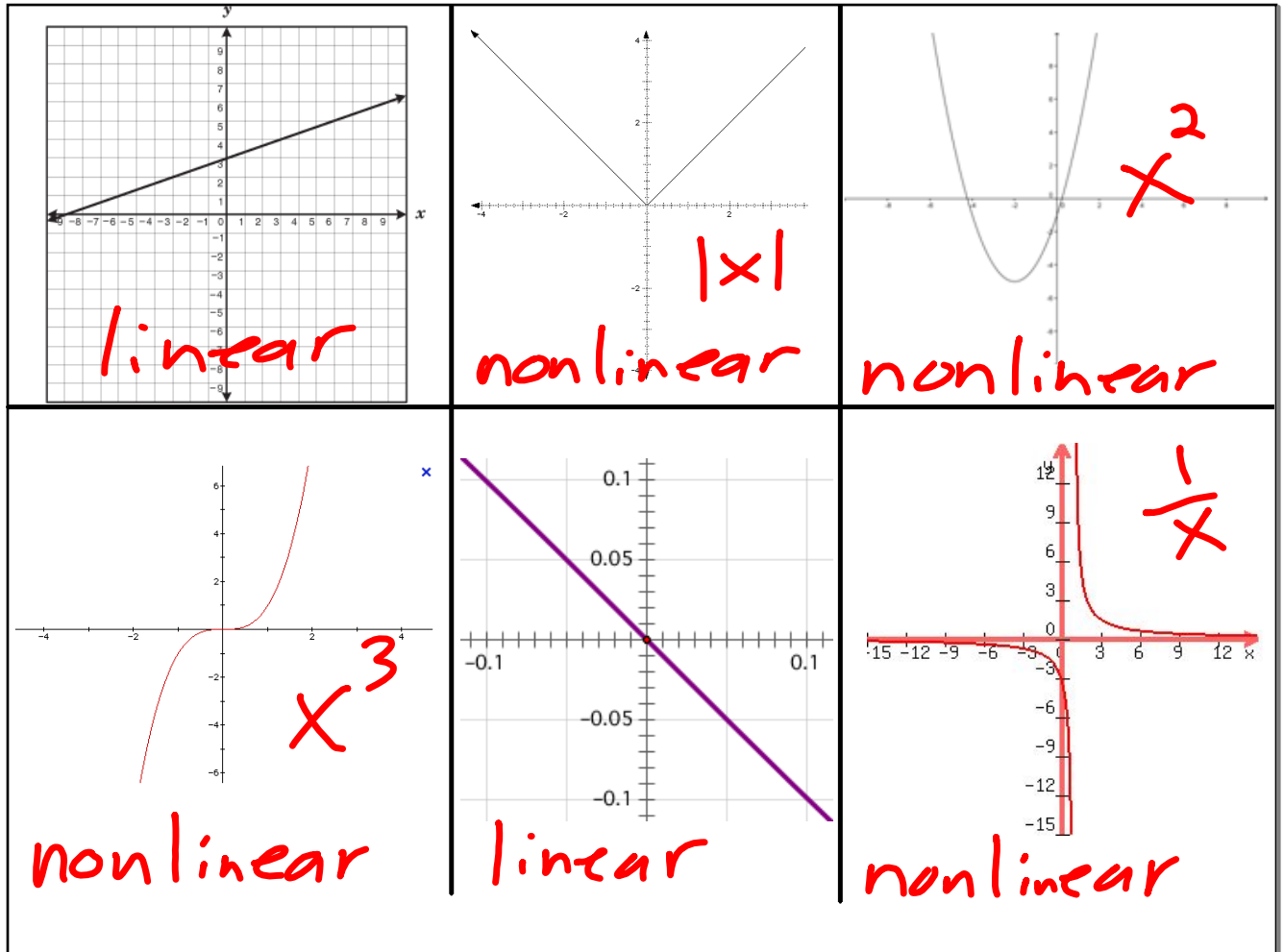


Linear vs. Nonlinear

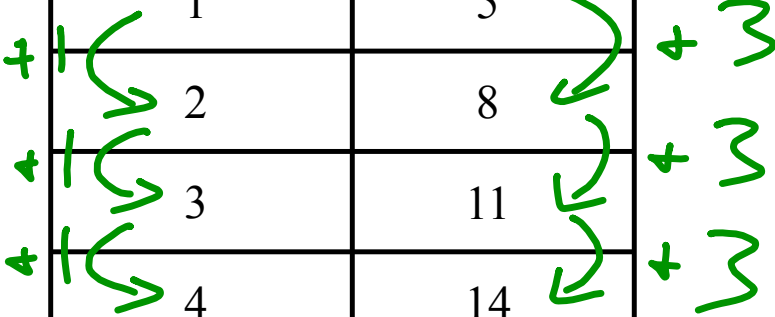


linear functions - functions in which the graph of the solutions forms a line

nonlinear functions - functions that do not have constant rates of change; therefore, their graphs are not straight lines

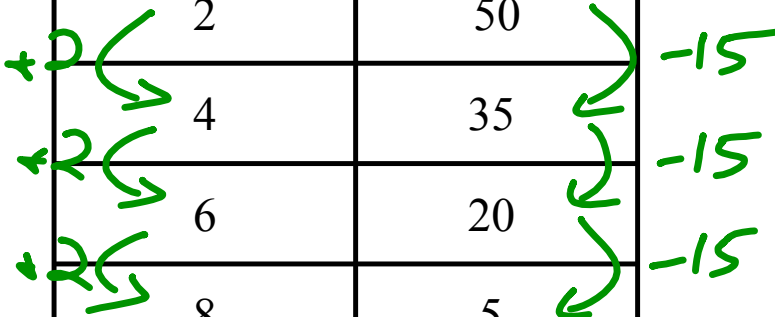


x	y
1	5
2	8
3	11
4	14



linear

x	y
2	50
4	35
6	20
8	5



linear

$$y = x^2$$

x	y
1	1
4	16
7	49
10	100

+3
+3
+3

+15
+33
+51

nonlinear

Linear functions can always be written in the form:

$$y = mx + b$$

exception: $x = k$

$$y = 3x + 1 \quad \text{linear}$$

$$y = x^2 - 6 \quad \text{nonlinear}$$

$$y = x^3 \quad \text{nonlinear}$$

$$y = |x| \quad \text{nonlinear}$$

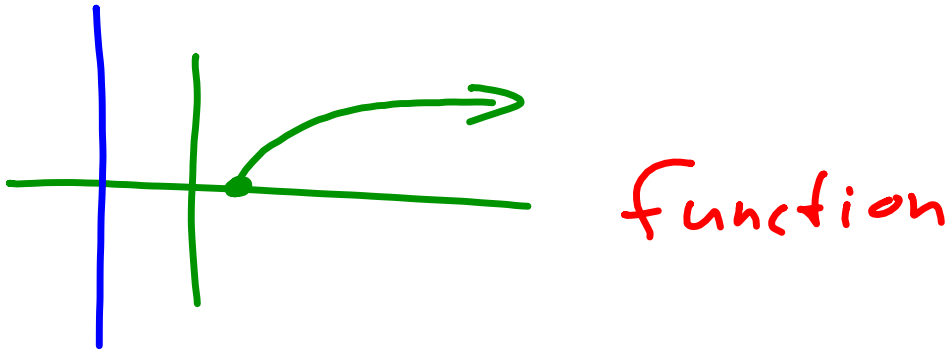
$$3x + y = 9 \quad \text{linear}$$

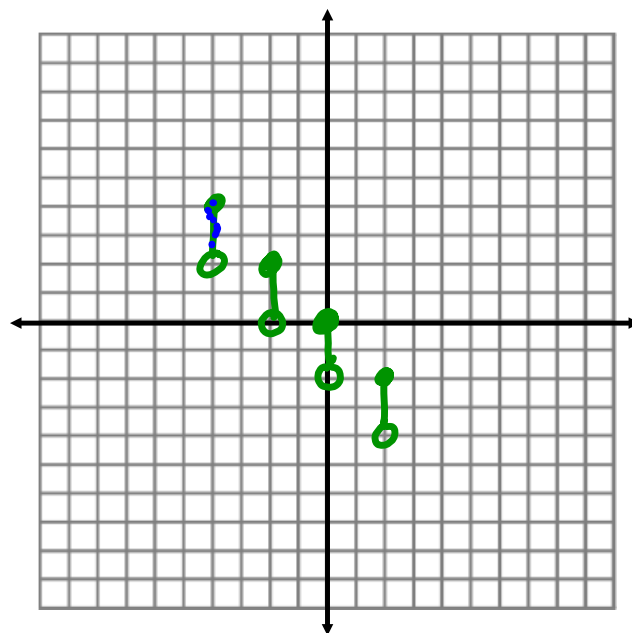
$$y = \frac{x}{4} \quad \text{linear}$$

$$y = mx + b \quad y = \frac{1}{4}x$$

$$y = \frac{2}{x} \quad \text{nonlinear}$$

HW Solutions





Not a
function

Identify the functions as linear or nonlinear.

1) $2x + 5y = -6$ *linear*

2) $5x = 9y$ *linear* 12)

3) $y = 5 + x^2$ *nonlinear* +2

4) $y = x^3 - 7$ *nonlinear* +2

5) $y = x$ *linear* +2

6) $x = 8$ *linear* 13)

7) $y = -10$ *linear*

8) $y = |x| + 2$ *nonlinear* +4

9) $y = |4x - 6|$ *nonlinear* +4

10) $y = 5/x$ *nonlinear* +4

11) $y = x/3 + 12$ *linear*

x	y
1	1
3	7
5	13
7	19

linear

x	y
8	-2
12	0
16	4
20	10

nonlinear