Curriculum Outcomes:

(PR1) Generalize a pattern arising from a problem-solving context using linear equations and verify by substitution.

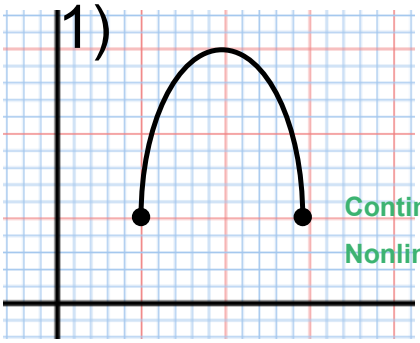
(PR2) Graph linear relations, analyze the graph and interpolate or extrapolate to solve problems.

Student Friendly: Other forms of linear equations

Feb 6-7:53 AM

Warm Up

1)



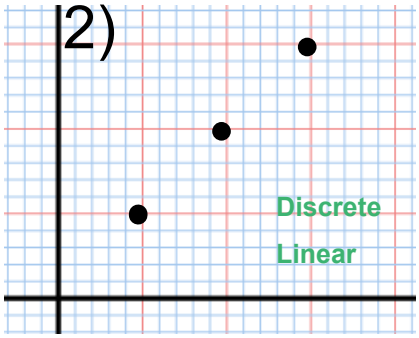
Continuous

Nonlinear

Discrete or Continuous??

Answer

2)

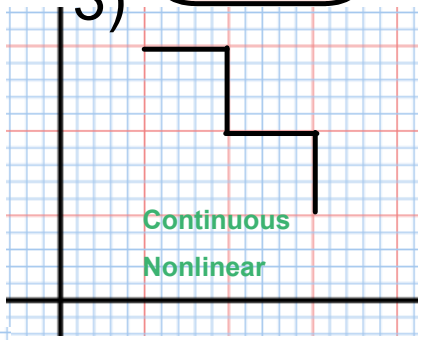


Discrete

Linear

Linear or Nonlinear??

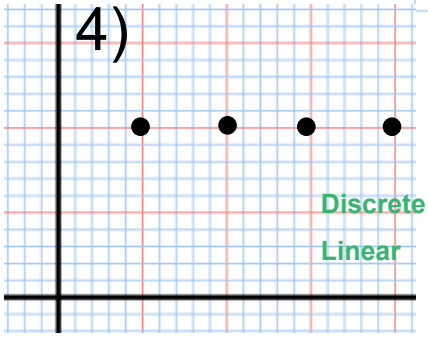
3)



Continuous

Nonlinear

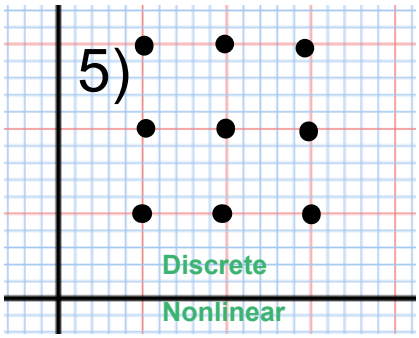
4)



Discrete

Linear

5)



Discrete

Nonlinear

Dec 1-10:55 AM

Warm Up
Day 2

$y = \frac{\Delta y}{\Delta x} x \pm \#$

Determine if the following is linear or nonlinear and ***IF*** it is linear determine the equation

a)

x	y
-4	2
-1	4
2	6
5	7

(+3, +2; +3, +2; +3, +1)

Non-linear

b)

x	y
-5	3
0	6
5	9
10	12

(Δx, Δy; +5, +3; +5, +3; +5, +3)

Linear

$y = \frac{3}{5}x + 6$

c)

x	y
6	-5
8	-10
10	-15
12	-20

(Δx, Δy; +2, -5; +2, -5; +2, -5)

Linear

$y = \frac{-5}{2}x + 10$

Section 4.3

Another Form of the Equation for a Linear Relation

Mar 23-9:29 PM

$$y = \frac{\triangle y}{\triangle x} \; x \pm \#$$

Examples:

$y = 2x - 6$

Δy 2

Δx 1

x	y
-1	
0	
1	

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

Δy -3

Δx 5

x	y
-5	
0	
5	

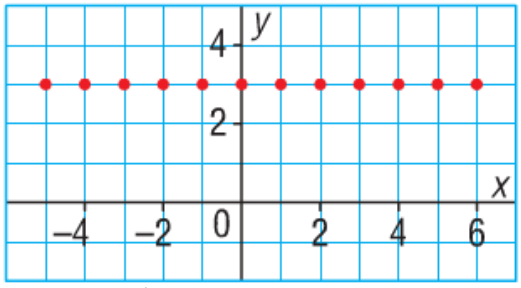
Mar 26-6:50 PM

These are some other ways to write the equation of a linear relation.

$ax + by = c$ a, b, c are just #
$x = \#$
$y = \#$

Nov 22-8:54 PM

Horizontal vs. Vertical



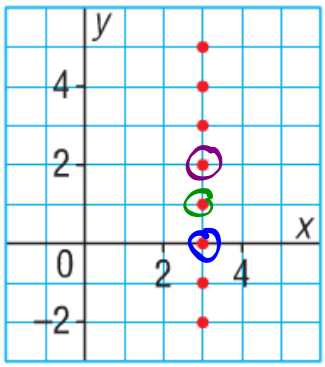
x	y
−1	3
0	3
1	3

For every 'x' value y will always equal 3

crosses the y-axis

Equation : $y = 3$

(x, 3)



x	y
3	0
3	1
3	2

For every 'y' value x will always equal 3

crosses the x-axis

Equation: $x = 3$

(3, y)

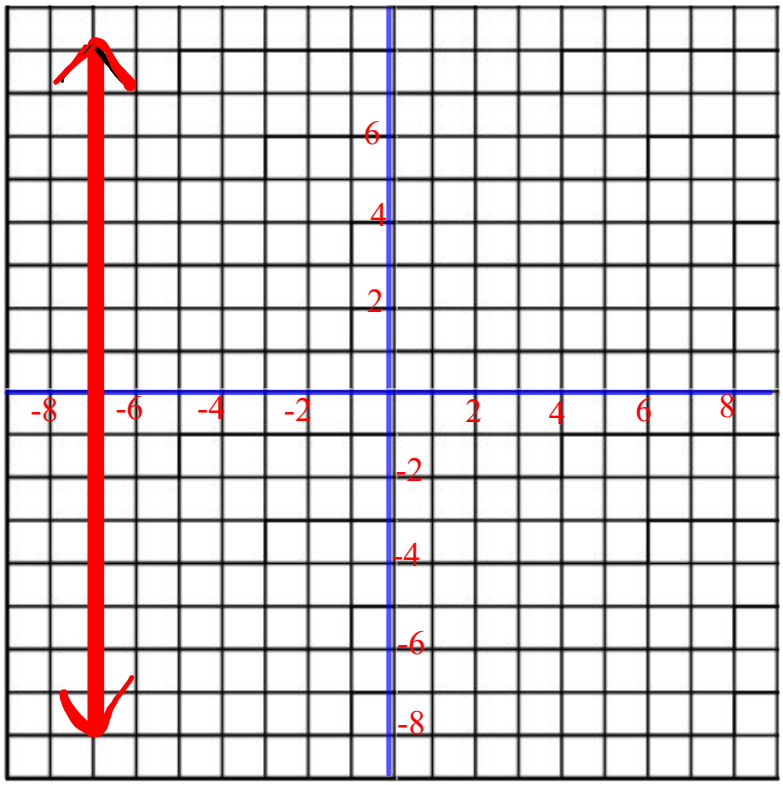
Your Turn

i) Describe the equation: Vertical or horizontal

$x + 7 = 0$

$x = -7$

ii) Graph the equation



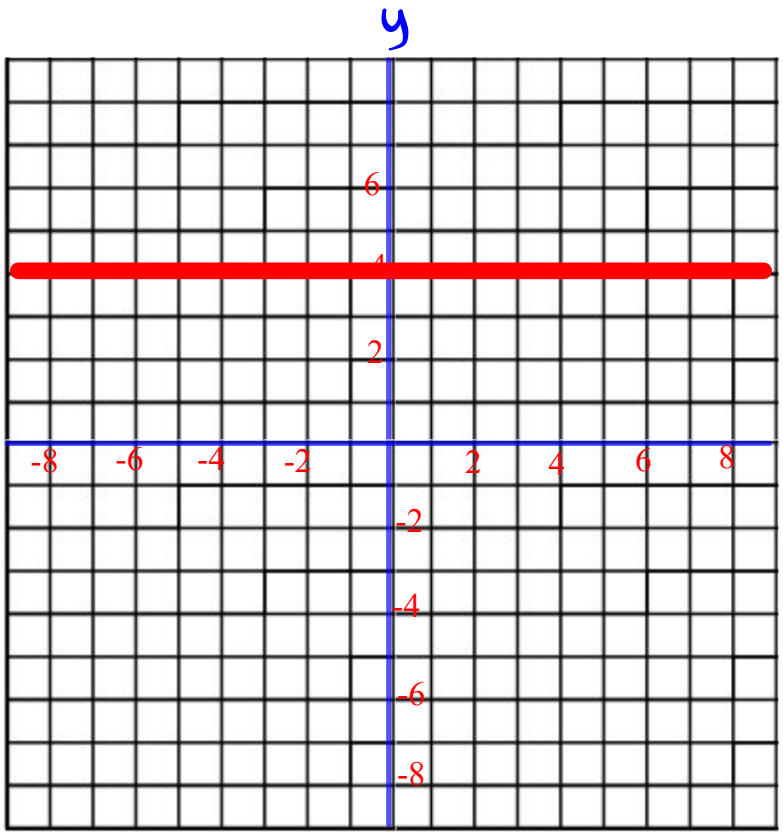
i) Describe the equation : Vertical or horizontal

$$2y = 8$$

$$\frac{2y}{2} = \frac{8}{2}$$

$$y = 4$$

ii) Graph the equation



Oblique Lines

An oblique line can be diagonal, sloping or slanted. It is not vertical, horizontal, parallel or perpendicular

Oblique Linear Eqautions

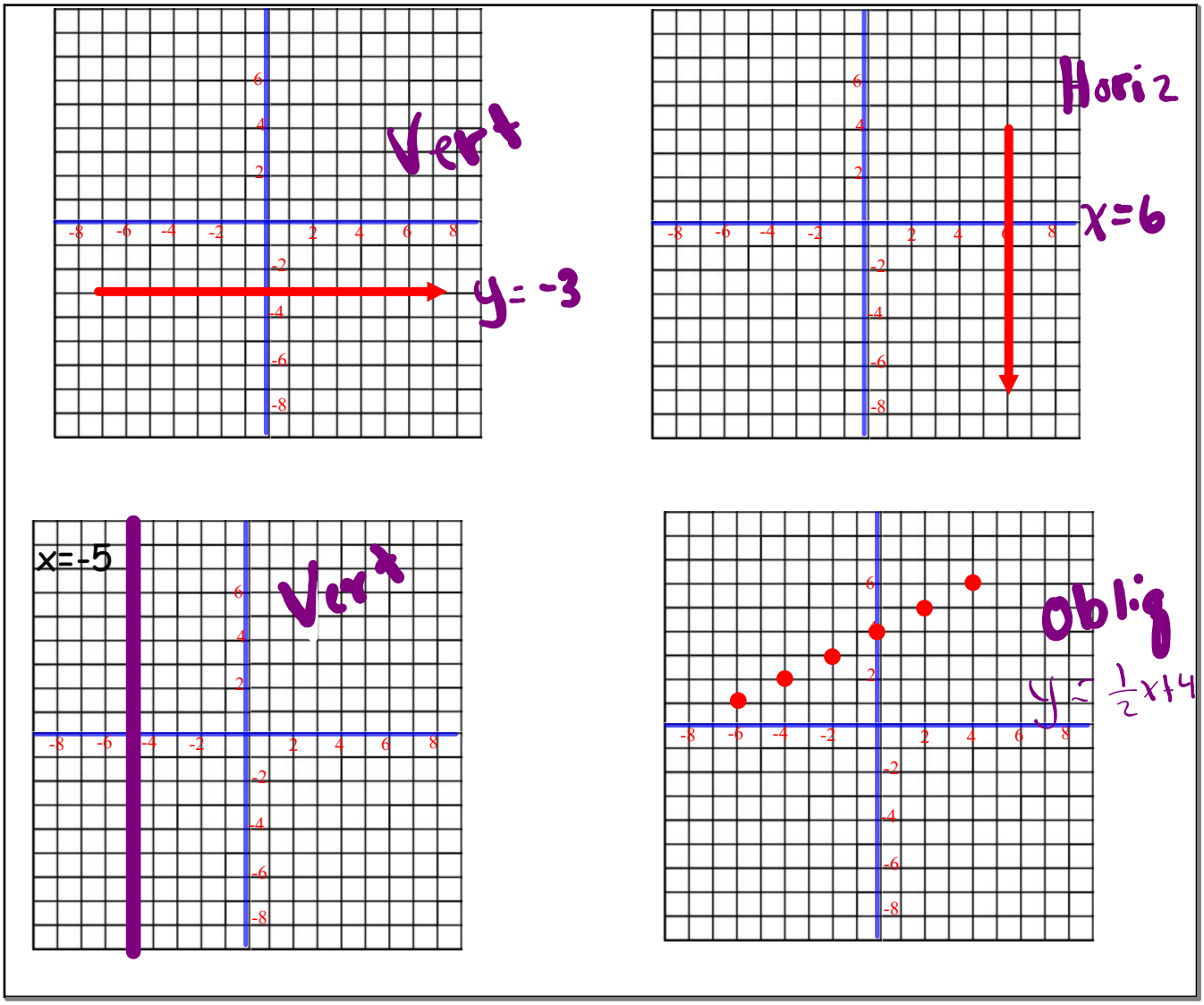
$y = \frac{\Delta y}{\Delta x} x \pm \#$

$ax + by = c$

$y = 2x + 5$

$3x - 4y = 8$

Nov 22-9:57 PM



Dec 7-7:39 PM

Test your Knowledge:

State if the line is vertical, horizontal, oblique or nonlinear

1) $2x = 7$ vertical

2) $3x + y = 5$ oblique

3) $2y - x = 7$ oblique

4) $y + 3 = 6$ horizontal

5) $2x^2 - 5y^2 = 9$ nonlinear

6) $y = 8$ horizontal

7) $x - 5 = -3$ vertical

Mar 20-10:59 AM

Graphing an Equation in the Form ax + by = c

For the equation $3x - 2y = 6$

You try

i) Rearrange and then graph

$$3x - 2y = 6$$

$$3x \overset{-3x}{-} 2y = 6 \overset{-3x}{}$$

$$-2y = -3x + 6$$

$$\frac{-2y}{-2} = \frac{-3x}{-2} + \frac{6}{-2}$$

$$y = \frac{3x}{2} - 3$$

$y = \frac{\Delta y}{\Delta x} x \pm \#$

$y = ? x \pm \#$

remember

$y = \frac{\Delta y}{\Delta x} x \pm \#$

$\Delta x = 2$

x	y
-2	-6
0	-3
2	0

x= -2

$y = \frac{3(-2)}{2} - 3$

$y = \frac{-6}{2} - 3$

$y = -3 - 3$

$y = -6$

x= 0

$y = \frac{3(0)}{2} - 3$

$y = \frac{0}{2} - 3$

$y = 0 - 3$

$y = -3$

x= 2

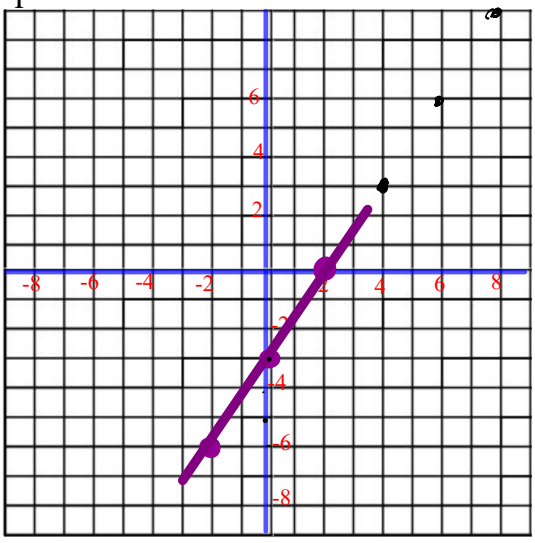
$y = \frac{3(2)}{2} - 3$

$y = \frac{6}{2} - 3$

$y = 3 - 3$

$y = 0$

b) Graph the equation



Nov 22-9:42 PM

You Try

Make a table of values, and then graph. Show all work

$6x - 3y = 9$ (-6x, -6x)

$-3y = -6x + 9$ (÷ -3, ÷ -3, ÷ -3)

$y = 2x - 3$

△ x = 1

x	y
-1	-5
0	-3
1	-1

remember

$y = \frac{\Delta y}{\Delta x} \; x \pm \#$

X= -1

y= 2x - 3

y= 2(-1) - 3

y= -2 - 3

y= -5

X= 0

y= 2x - 3

y= 2(0) - 3

y= 0 - 3

y= -3

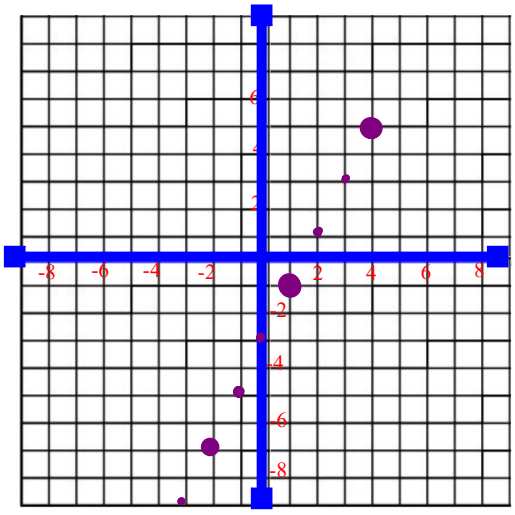
X= 1

y= 2x - 3

y= 2(1) - 3

y= 2 - 3

y= -1



Nov 27-11:52 AM

You Try

Make a table of values, and then graph. Show all work

$$-5x + 4y = 8$$

(+5x) (+5x)

$$\frac{4y}{4} = \frac{5x}{4} + \frac{8}{4}$$

$$y = \frac{5x}{4} + 2$$

remember

$$y = \frac{\Delta y}{\Delta x} \; x \pm \#$$

$\Delta x = 4$

x	y
-4	-3
0	2
4	7

X= -4

$y = \frac{5(-4)}{4} + 2$

$y = -5 + 2$

$y = -3$

X= 0

$y = \frac{5(0)}{4} + 2$

$y = 0 + 2$

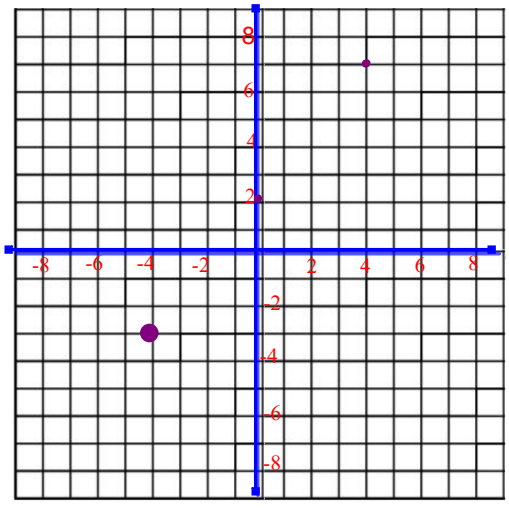
$y = 2$

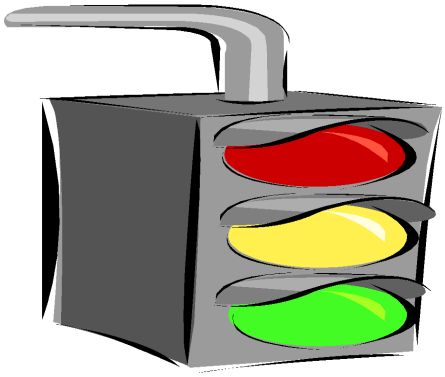
X= 4

$y = \frac{5(4)}{4} + 2$

$y = 5 + 2$

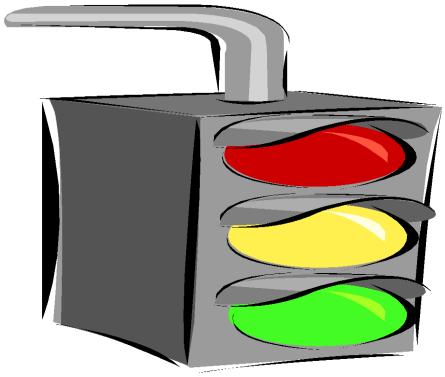
$y = 7$





Now it is time for Home Learning

Oct 27-10:41 PM



Class/Homework

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QUESTIONS

4,5,6,7,8,9,10ai

11 , 12, 12, 14 , 15abcd

Oct 27-10:41 PM