Curriculum Outcomes:

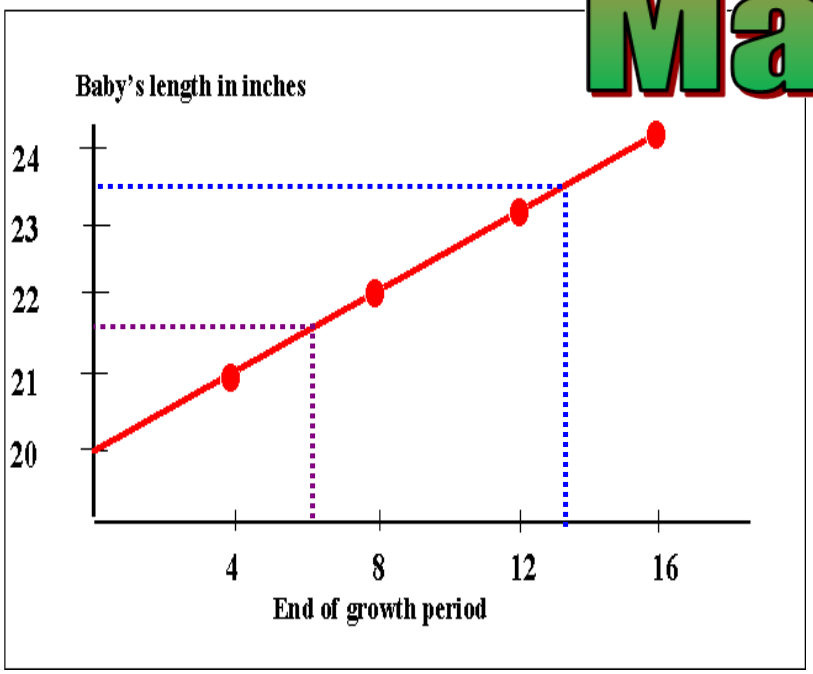
(PR1) Generalize a pattern arising from a problem-solving context using linear equations and verify by substitution.

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

Student Friendly: Test Review

Feb 6-7:53 AM

Warm-Up Math 9



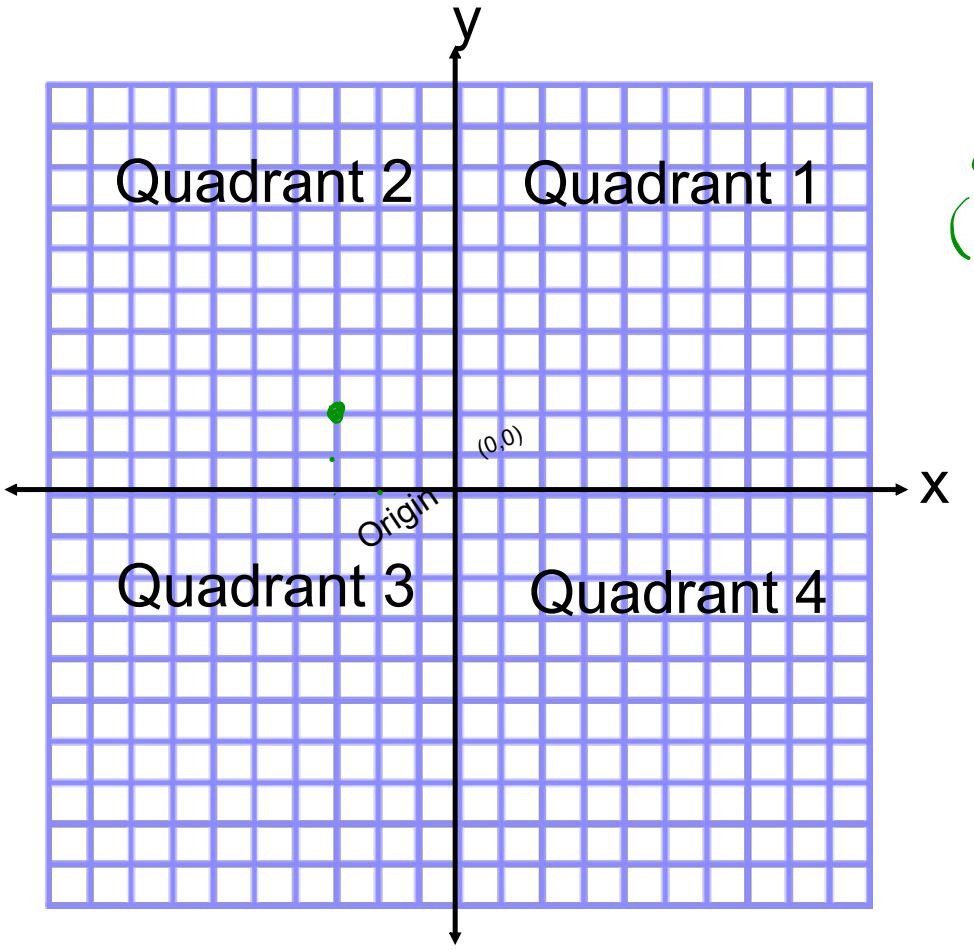
Using the above graph, estimate the growth of a baby at the end of growth period 6. 21.5 inches

Using the above graph, estimate the growth period when a baby is 23.5 inches.

Growth period 14

Sep 14-6:47 PM

Coordinate Geometry Review



(→ ↕)
(x, y)

(-3, 2)

Dec 1-9:08 AM

Equation

$$y = \left(\frac{\text{Change } y}{\text{Change } x}\right)(\text{"x"}) \pm \#$$

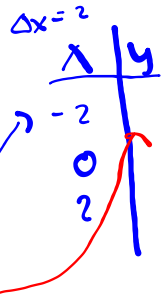
$$y = \frac{\triangle y}{\triangle x}\, x \pm \#$$

X → independent

y→ dependent

$y = 3x - 5$

$y = -\frac{1}{2}x + 6$



Nov 13-11:27 AM

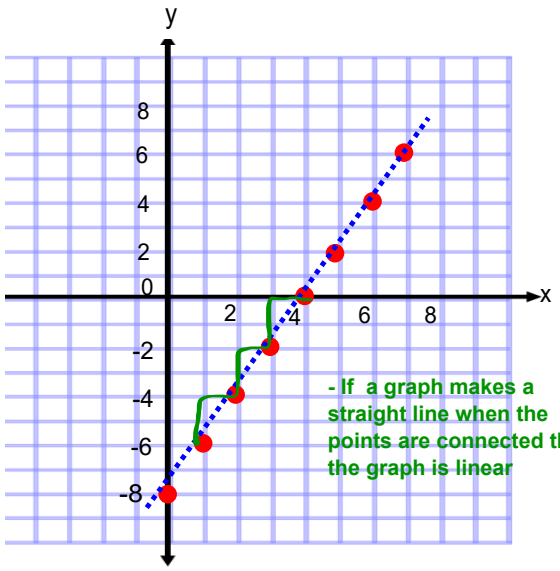
Linear Relation

- is when the graph is a straight line
- a constant change in 'x' causes a constant change in 'y'

Table of Values

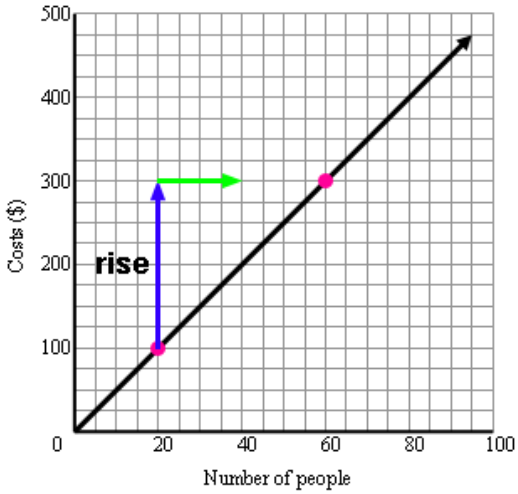
Δx	x	y	Δy
	0	-8	
+1			+2
	1	-6	
+1			+2
	2	-4	
+1			+2
	3	-2	

- In a table if the x values change by a constant , and the y values change by a constant then the graph is linear



- If a graph makes a straight line when the points are connected then the graph is linear

$\frac{\Delta y}{\Delta x} \quad \frac{2}{1} \quad \uparrow \rightarrow$



Concrete vs. Discrete

Discrete : Dots

Continuous : Connect

-Look at the "x" and see if you can have half values

Cost of video games

X

Number of Video games	Cost, C($)
1	25
2	50
3	75

Discrete

Can you buy 1.5 video games?

So would you connect the dots???

Babysitting Job

X

Number of Hours	Earnings, C($)
1	10
1.5	
2	20
3	30

Cont

Can you work 1.5 hours?

So would you connect the dots???

Nov 9-8:09 PM

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

$y = \frac{2}{3}x + 5$ →

$y = \frac{\Delta y}{\Delta x} \times \pm \#$	Oblique
$ax + by = c$	Oblique
$x = \#$	Vertical
$y = \#$	Horizontal

$3x + 2y = 4$ →

$x = -2$ ↕

$y = 5$ ↔

You Try

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

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

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

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

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

remember

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

$\Delta x = 4$

x	y
-4	-5
0	2
4	7

+4, +4

X= -4

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

$y = -5 + 2$

$y = -3$

X= 0

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

$y = 0 + 2$

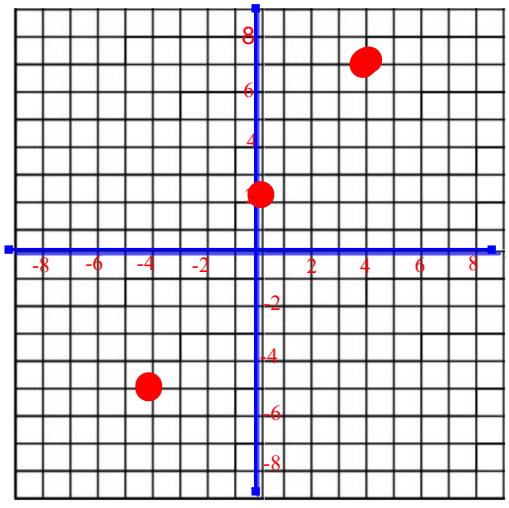
$y = 2$

X= 4

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

$y = 5 + 2$

$y = 7$



$\frac{1}{3}x + \frac{1}{2}y = -3$ (×6, ×6, ×6)

$2x + 3y = -18$ (-2x, -2x)

$\frac{3y}{3} = \frac{-2x}{3} \quad \frac{-18}{3}$

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

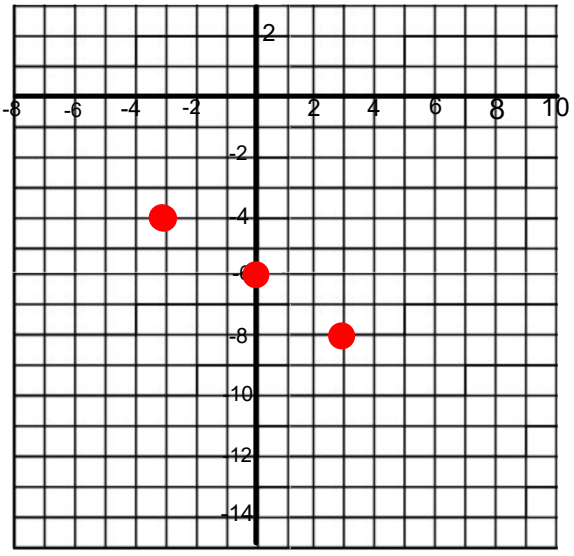
$$y = \frac{-2x}{3} - 6$$

$\Delta x = 3$

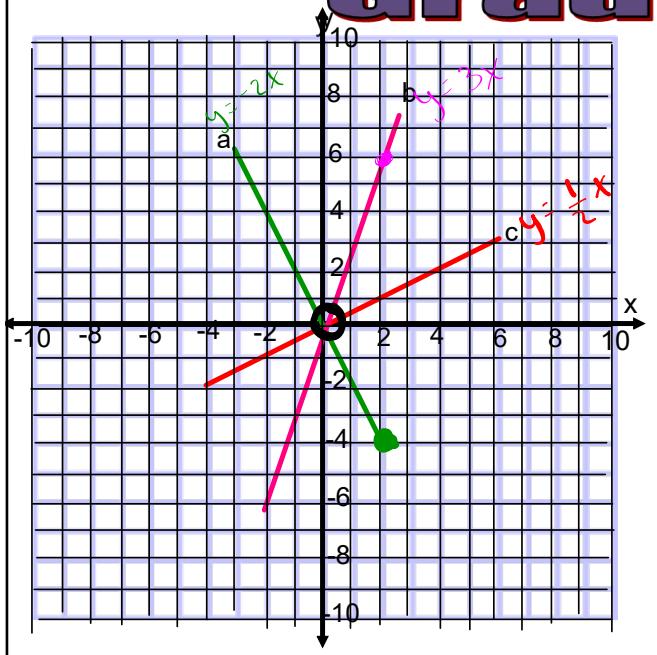
x	y
-3	-4
0	-6
3	-8

$\Delta x = 3$

x= -3	x= 0
$y = \frac{-2x}{3} - 6$	$y = \frac{-2x}{3} - 6$
$y = \frac{-2(-3)}{3} - 6$	$y = \frac{-2(0)}{3} - 6$
$y = 2 - 6$	$y = 0 - 6$
$y = -4$	$y = -6$



Warm-Up Grade 9



i) $y=\frac{1}{2}x$ $\Delta y : 2$

x= 0 x= 2

$y= \frac{1}{2}x$ $y= \frac{1}{2}x$

$y= \frac{1}{2}(0)$ $y= \frac{1}{2}(2)$

y= 0 y= 1

(0,0) (2,1)

C

ii) y= -2x

x= 0 x= 2

y= -2x y= -2x

y= -2(0) = -2(2)

y= 0 y= -4

(0,0) (2,-4)

A

iii) y= 3 x

x= 0 x= 2

y= 3 x y= 3 x

y= 3 (0) y= 3 (2)

y= 0 y=6

(0,0) (2,6)

B

If you always rearrange first

$y = \frac{\Delta y}{\Delta x}x \pm \#$ (slope, (0,#))

$Y = 3x + 2$ ($x = 0$ $(0, 2)$)

The number in front of "x" in the equation represents the slope:

Slope: (how steep a line is)

What we notice: when x increases by **1**, y increases by **3**

$$\text{Slope} = \frac{\text{change in y}}{\text{change in x}} = \frac{\Delta y}{\Delta x} = \frac{\text{RISE}}{\text{RUN}}$$

Thus

$\frac{\Delta y}{\Delta x} = \frac{3}{1}$ ↑ run up 3 → over right 1

Create a table of values for each linear relation and then graph the relation.

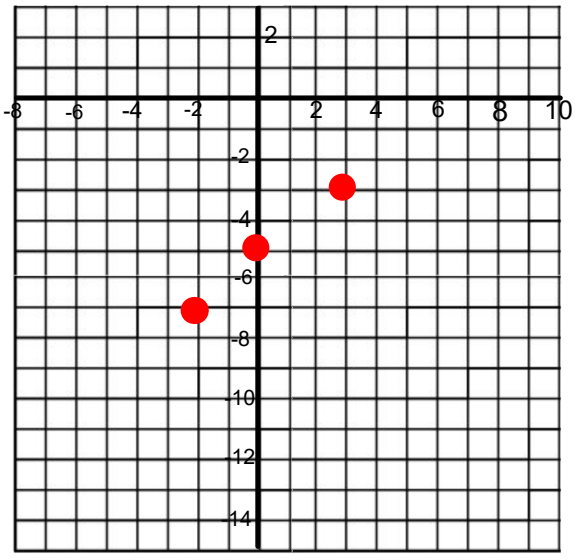
$y = \frac{2}{3}x - 5$

$\triangle y = 2$, $\triangle x = 3$, $x = 0$, $(0,5)$

$\triangle x = 3$

x	y
-3	-7
0	-5
3	-3

$\triangle y = 2$



$5x - 2y = -12$

$-5x \quad -5x$

$-2y = -5x - 12$

$\div -2 \quad \div -2 \quad \div -2$

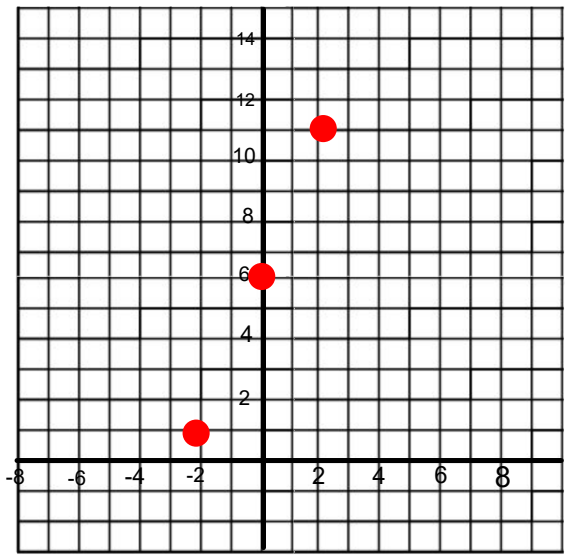
$y = \frac{5}{2}x + 6$

$\triangle y = 5$, $\triangle x = 2$, $x = 0$, $(0,6)$

$\triangle x = 2$

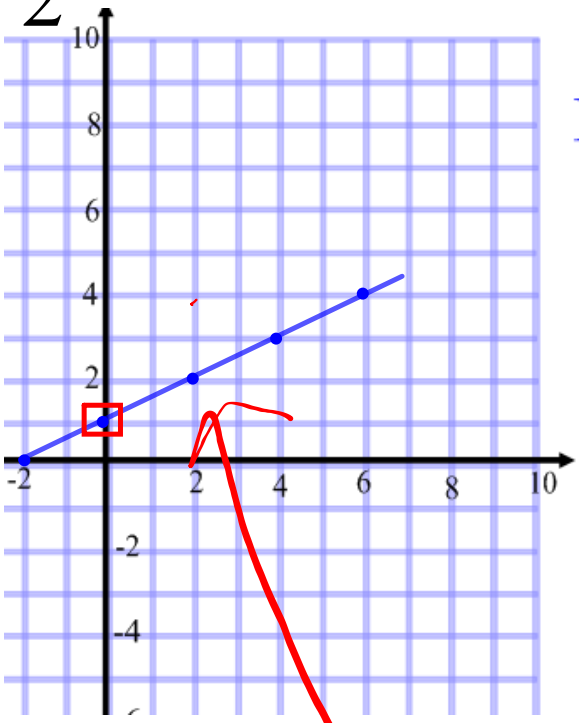
x	y
-2	1
0	6
2	11

$+2 \rightarrow +5$, $+2 \rightarrow +5$



Which equation represents the graph?

2



Pick the correct equation

a) $y = \frac{3}{2}x + 1$

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

y = 3/2(0) +1
y= 0 + 1
y= 1
(0,1)

b) $y = 2x + 1$

$\frac{\Delta y}{\Delta x} = \frac{2}{1}$

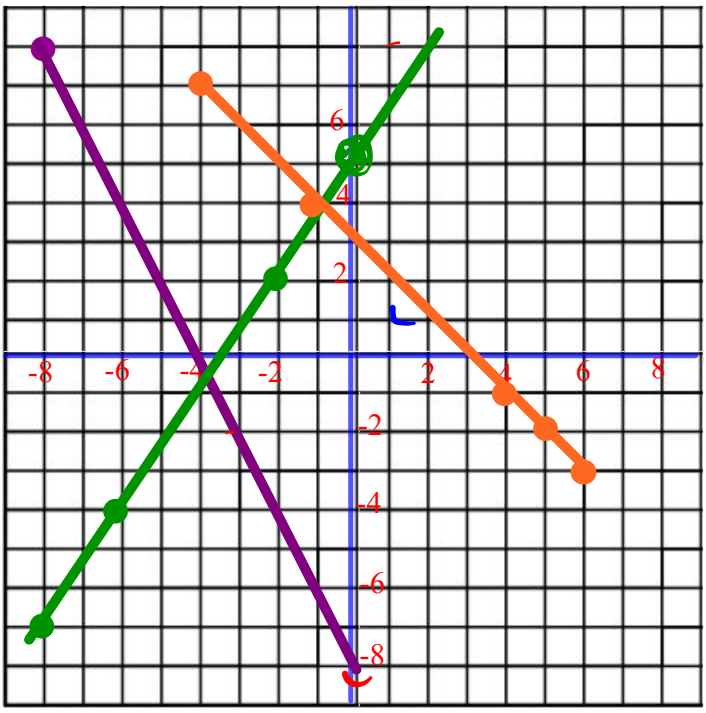
y = 2(0) +1
y= 0 + 1
y= 1
(0,1)

c) $y = \frac{1}{2}x + 1$

$\frac{\Delta y}{\Delta x} = \frac{1}{2}$

y = 1/2(0) +1
y= 0 + 1
y= 1
(0,1)

Dec 12-8:53 PM



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

Green

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

x= 0

(0, 5)

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

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

Orange

$\frac{\Delta y}{\Delta x} = \frac{-1}{1}$

x= 0

(0, 3)

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

$y = \frac{-1}{1}x + 3$

$y = -x + 3$

Purple

$\frac{\Delta y}{\Delta x} = \frac{2}{-1}$

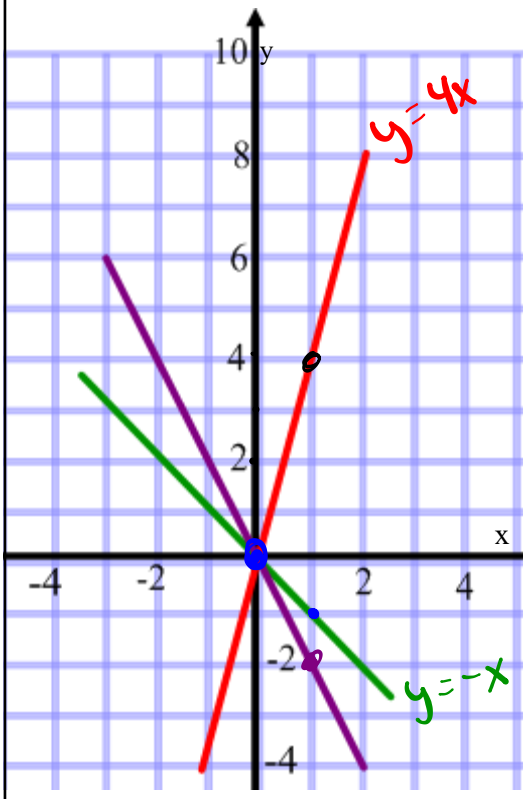
x= 0

(0, -8)

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

$y = \frac{-2}{1}x - 8$

Matching Equations with Graphs that Pass Through the Origin



Match each graph on the grid with its equation

(Use the previous slide to help answer)

$y = -x$ $\frac{\Delta y}{\Delta x} = \frac{-1}{1}$ x= 0 (0, 0)

Green

$y = 4x$ $\frac{\Delta y}{\Delta x} = \frac{4}{1}$ ↑ → x= 0 (0, 0)

Red

$y = -2x$ $\frac{\Delta y}{\Delta x} = \frac{-2}{1}$ ↓ → x= 0 (0, 0)

Purple

Dec 12-6:24 PM

Graph the following using the point-slope formula

hint: must rearrange first $y = \frac{\Delta y}{\Delta x} x \pm \#$

$x + y = 4$

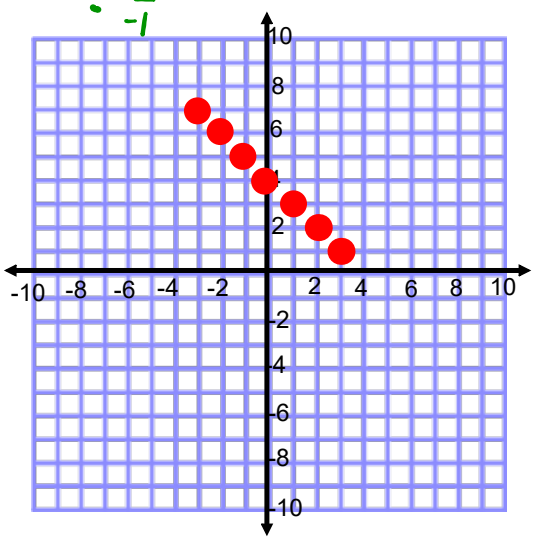
$-x \quad -x$

$y = -x + 4$

$\frac{\Delta y}{\Delta x} = \frac{-1}{1}$

x= 0

(0, 4)



$2x - 3y = 12$

$-2x \quad -2x$

$-3y = -2x + 12$

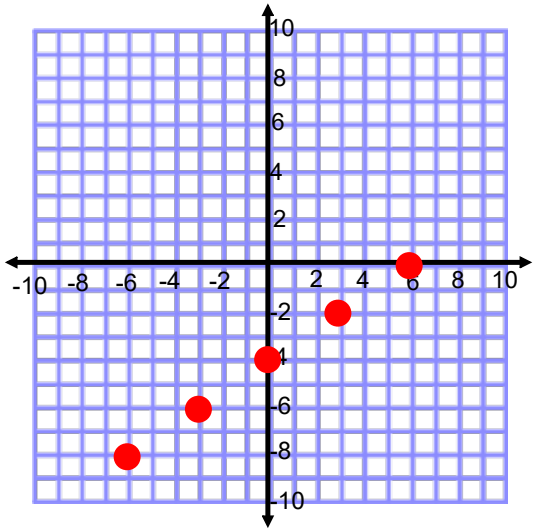
$\frac{}{-3} \quad \frac{}{-3} \quad \frac{}{-3}$

$y = \frac{2x - 4}{3}$

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

x= 0

(0, -4)

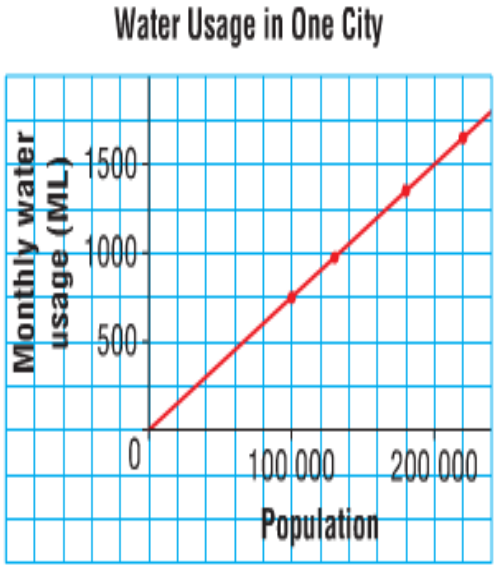


A city has grown over the past few years. This table and graph show how the volume of water used each month is related to the population.

Population	Monthly Water Usage (ML)
100 000	750
130 000	975
160 000	1 200
190 000	1 425
220 000	1650
250 00	1875
280 000	2100

1 ML is 1 000 000 L.

+225 +225 +225



a) Estimate the monthly water usage for a population of 150 000 people.

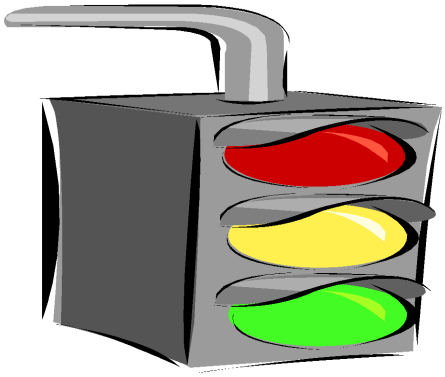
Interpolation

(1125 mL)

b) Predict the water usage for 250 000 people.

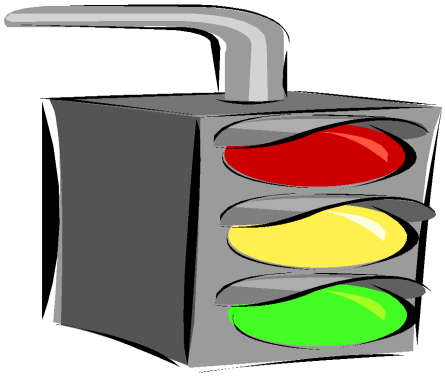
Extrapolation

(1875 mL)



Now it is time for Home Learning

Oct 27-10:41 PM



Class/Homework

PAGE 201-203

QUESTIONS

1(c, d,e,f,g),
4,
5(b, c),
8,
10,
11,
12,
13,
14,
15,
17

&

MOCK TEST

Oct 27-10:41 PM

Attachments

Day 3 Monday - 4 Days of Literacy.notebook

Day 30_31_Chapter 4 Test Review_Work sheets.pdf

Graphing Equation_ws.docx

Linear Eqautions and Graphs .pdf