

4

CHAPTER REVIEW

NAME: _____

P: _____

D: _____

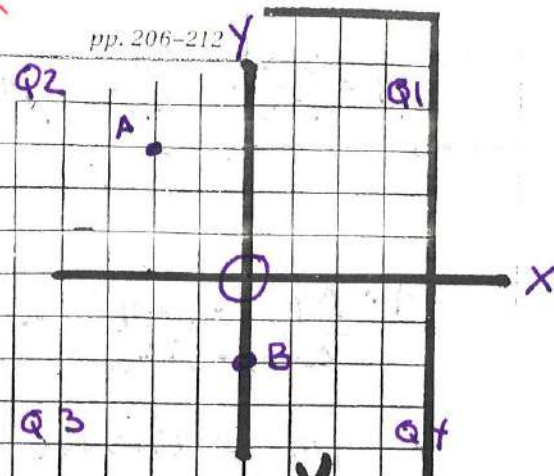
Plot Points in a Coordinate Plane

EXAMPLE

Plot the points $A(-2, 3)$ and $B(0, -2)$ in a coordinate plane. Describe the location of the points.

**LABEL QUADRANTS,
AXIS'S + ORIGIN**

pp. 206-212



4.2

Graph Linear Equations

TABLE METHOD

pp. 215-221

EXAMPLE

Graph the equation $y + 3x = 1$.

USE A TABLE!

DOMAIN:
 $x \geq -1$

X	-1	0	1	what is range?
Y	4	1	-2	R: $y \leq 4$

PUT INTO $y = mx + b$

$$y + 3x = 1$$

$$y - 3x - 3x = 1 - 3x$$

$$y = -3x + 1$$

- Create a table with $x \geq -1$
- Graph

4.3

Graph Using Intercepts

INTERCEPT METHOD

EXAMPLE

Graph the equation $2x - 8y = -16$

X INT: ($y=0$)

$$2x = 16$$

$$x = 8$$

Y INT ($x=0$):

$$-8y = -16$$

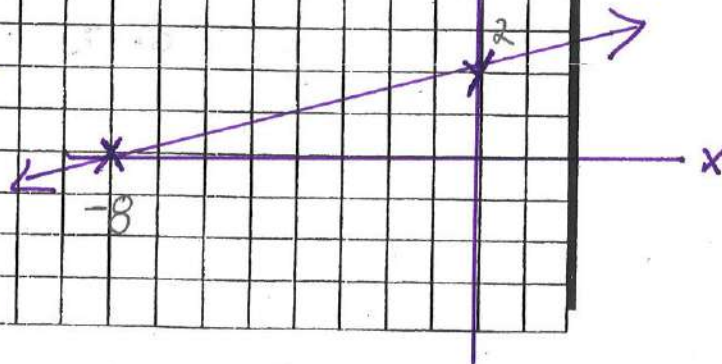
$$y = 2$$

X INT

(8, 0)
 $x = 8$

Y INT (0, 2)

$y = 2$
 $b = 2$



4.4 Find Slope and Rate of Change

pp. 235-242

$$M = \frac{\text{Rise}}{\text{Run}}$$

EXAMPLE

Given 2 Pts: $M = \frac{y_2 - y_1}{x_2 - x_1}$

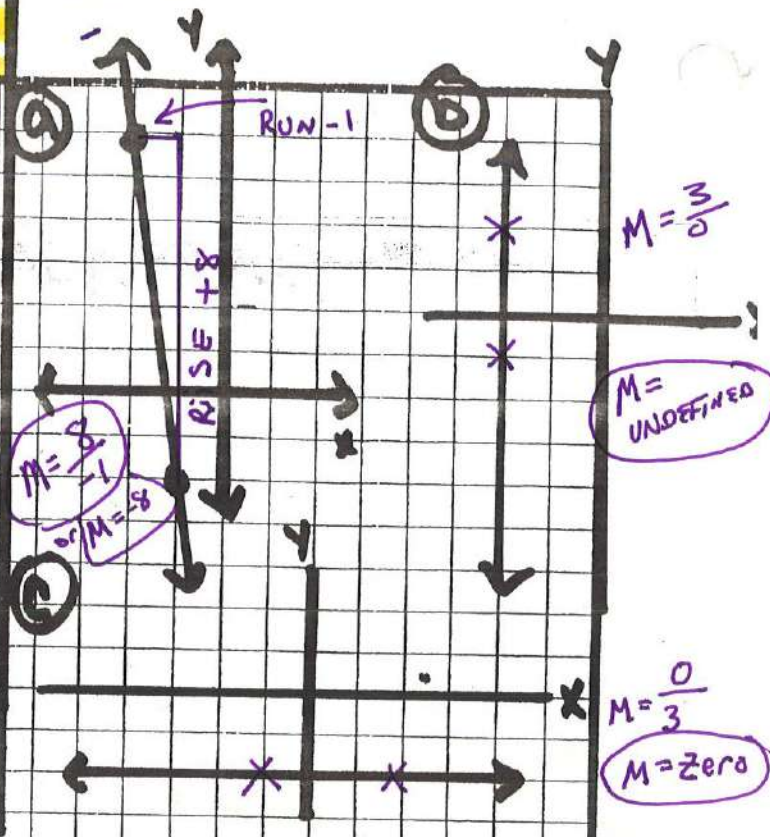
Find the slope of the line shown.

Let $(x_1, y_1) = (2, -3)$ and $(x_2, y_2) = (4, -4)$. $M = \frac{\Delta y}{\Delta x}$

$$M = \frac{-3 - (-4)}{2 - 4} = \frac{-3 + 4}{-2} = \frac{1}{-2}$$

$$M = -\frac{1}{2}$$

Given GRAPH:



2 $(-5, 5), (5, 5)$

$$M = \frac{5 - 5}{-5 - 5} = \frac{0}{-10}$$

$$M = \text{ZERO}$$

3 $(-3, -2), (-3, 4)$

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

$$M = \text{UNDEFINED}$$

4.5 Graph Using Slope-Intercept Form

pp. 244-250

EXAMPLE

Graph the equation $2x + y = -1$.

SLOPE-INTERCEPT METHOD

- ① PUT INTO $y = mx + b$ (slope, y-int)
- ② PLOT Y-INT
- ③ USE Rise/Run

$$y = -2x - 1$$

$$M = -2/1 \quad \left(\frac{\text{Rise } -2}{\text{Run } +1} \right)$$

$$B = -1$$

4.6 Model Direct Variation

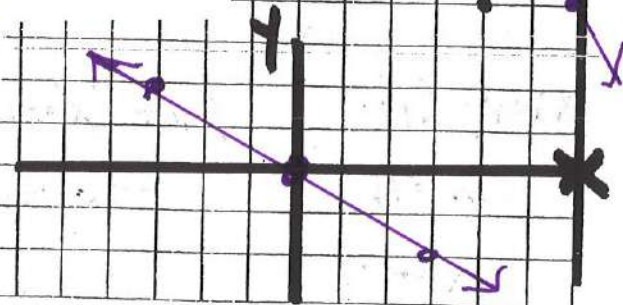
pp. 253-259

EXAMPLE

Graph the direct variation equation $y = -\frac{2}{3}x$.

* constant of variation is: $a = -\frac{2}{3}$

a (also called m)



4.7 Graph Linear Functions

pp. 262-268

EXAMPLE

Evaluate the function $f(x) = -6x + 5$

Substitute $x = 0$

$f(0) = 5$	$\rightarrow -6(0) + 5 = 5$
$f(-10) = 65$	$\rightarrow -6(-10) + 5 = 65$
$f(5) = -25$	$\rightarrow -6(5) + 5 = -25$

mental work

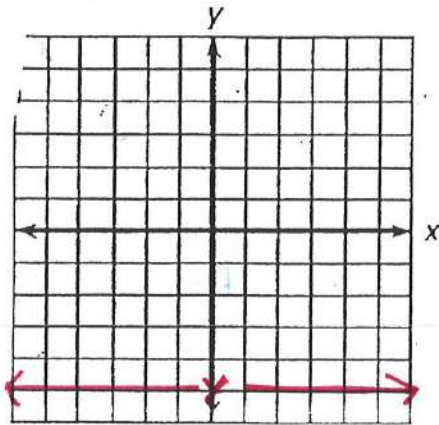
MORE REVIEW

GRAPH THE EQUATIONS. GIVE THE SLOPE AND Y-INTERCEPT

① $y = -5$

$m = 0$
 $b = -5$
 $y = 0x - 5$

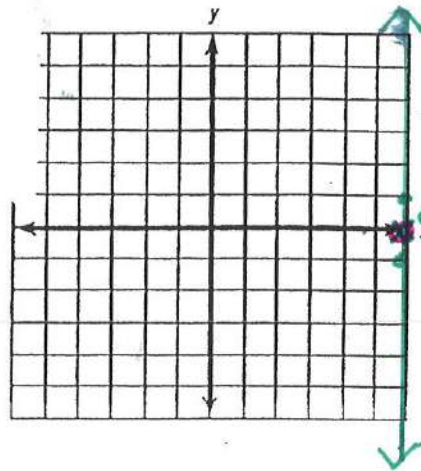
x	y
-1	-5
0	-5
1	-5



$y = b$ is always a horizontal line

② $x = 6$

x	y
6	-1
6	0
6	1



$x = a$ is always a vertical line

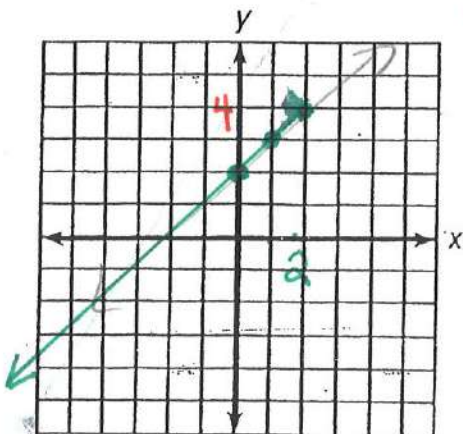
x-intercept

$m = \text{undefined}$
 $b = \text{none}$

GRAPH THE EQUATIONS WITH THE GIVEN DOMAIN RESTRICTION. STATE THE RANGE.

③ $y = x + 2$ Domain: $x \leq 2$

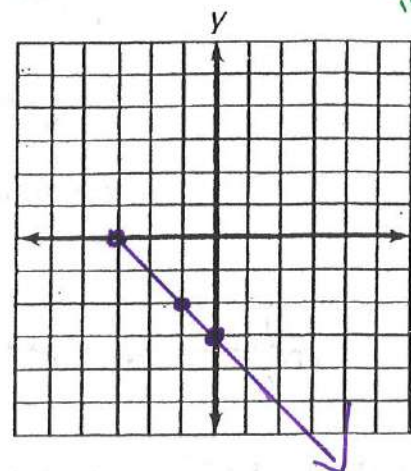
Range: $y \leq 4$ (NOTICE: "y" is getting smaller in the table)



x	y
0	2
1	3
2	4*

④ $y = -x - 3$ Domain: $x \geq -3$

Range: $y \leq 0$ (NOTICE: "y" is getting smaller in the table)

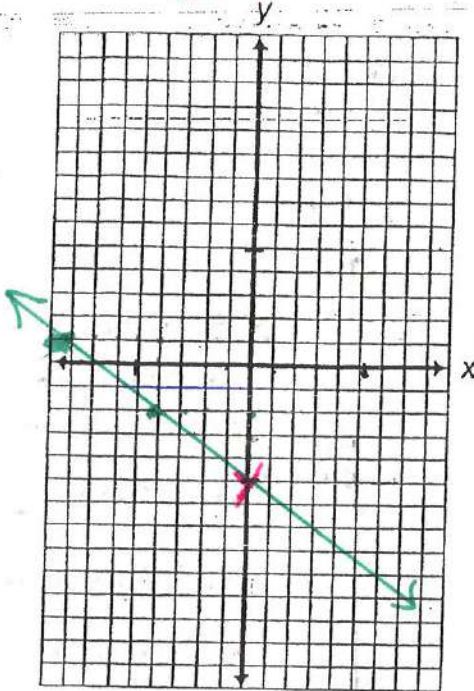


x	y
-3	0
-1	-2
0	-3

GRAPH USING SLOPE AND Y-INTERCEPT, STATE M + B.

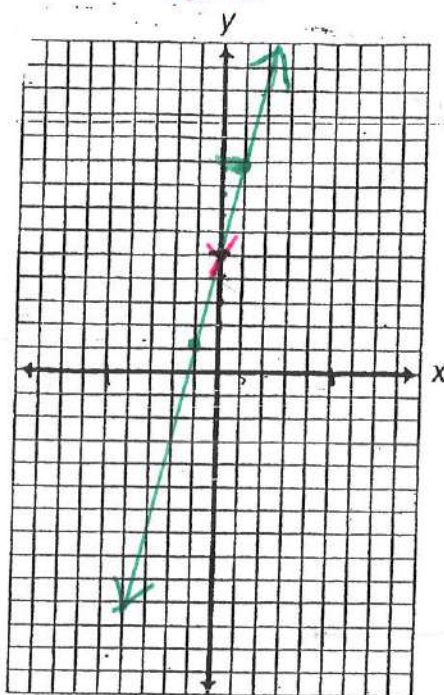
⑤ $y = -\frac{3}{4}x - 5$

$M = -\frac{3}{4}$
 $B = -5$



⑥ $y = 4x + 5$

$M = 4$
 $B = 5$

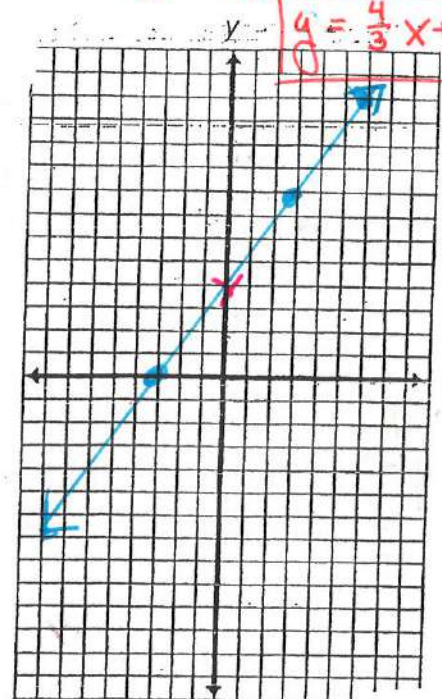


⑦ $4x - 3y = -12$

$$\begin{array}{r} -4x \\ -4x - 3y = -12 \\ \hline -3y = -12 \\ \hline y = 4 \end{array}$$

$y = \frac{4}{3}x + 4$

$M = \frac{4}{3}$
 $B = 4$



⑧

SWIMMING POOLS A public swimming pool that holds 45,000 gallons of water is going to be drained for maintenance at a rate of 100 gallons per minute. The amount of water w (in gallons) in the pool after t minutes is given by the function $w = 45,000 - 100t$. Graph the function. Identify its domain and range. How much water is in the pool after 60 minutes? How many minutes will it take to empty the pool? (p. 225)

KI: $w = 45,000 - 100t$
pool holds 45,000 gal water
 $w = \text{water (gal)}$
 $t = \text{time (min)}$

GRAPH: 6 pts

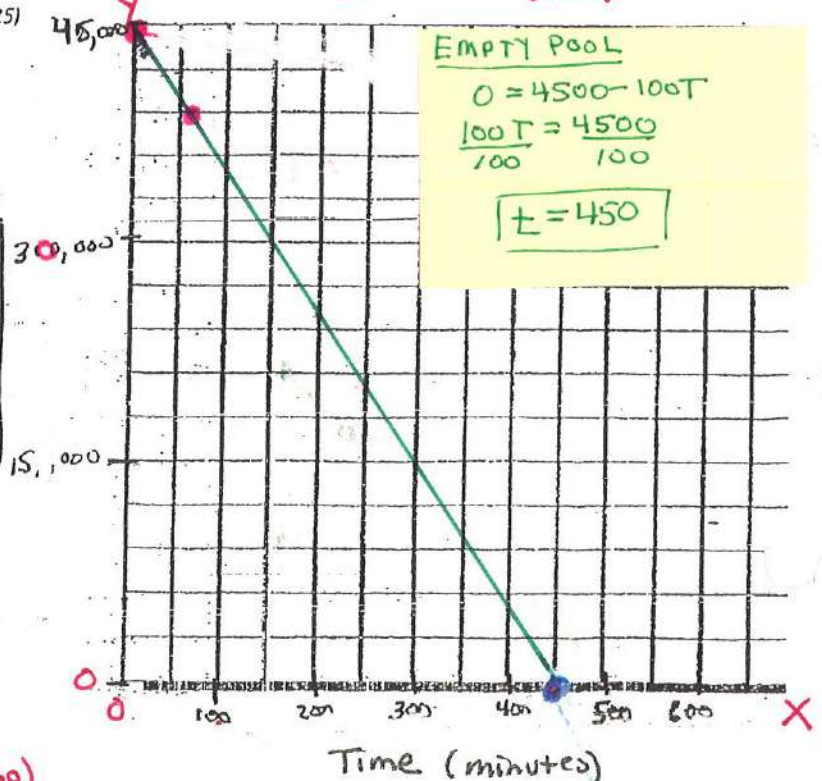
Domain: $0 \leq x \leq 450$

Range: $0 \leq y \leq 45,000$

Water at 60 min? 39,000 gal

Empty Pool? 450 minutes

Water (gallons)



$x \mid y$
 $0 \mid 45,000 \leftarrow \text{pool is full}$

$60 \mid 39,000 \leftarrow \text{at 60 min}$
 $450 \mid 0 \leftarrow w = 45,000 - 100(60)$