



final pt 1 SG
2012

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Name: _____
Date: _____ Blk: 1 2 4

Study Guide
Final Exam

Algebra 1 Part 1
Mrs. Theriot

I. Vocabulary - Know the definitions and be able to apply the skills associated with the words.
Use the definitions from your old tests.

- 1) slope- m - steepness of a line - $\frac{\text{rise}}{\text{run}}$ - rate of change
- 2) rise - vertical distance between 2 points - change in y's
- 3) run - horizontal distance between 2 points - change in x's
- 4) coordinate plane- formed by 2 real # lines that intersect at a right angle
- 5) direct variation - graph always passes through the origin
- 6) function form - a variable is isolated on one side (solve for y)
- 7) y intercept- b - initial value - starting point
- 8) parallel- lines that have the same slope + different y intercepts
- 9) perpendicular- product of slope = -1 Ex: 2 and $-\frac{1}{2}$
- 10) quadrants - 4 regions of the coordinate plane
- 11) function- has exactly one output for each input (inputs can't repeat)
- 12) x intercept- point where a line touches the x axis - (plug in 0 for y to find)

*** Study slope chart **4.5**

Review ALL notes.

OLD TEST PAPERS are the best study guides

Sign and return 2nd 9 weeks tests on the day of your exam to earn bonus points!!!!

Exam Schedule

2nd and 4th Block: Thursday, Dec. 20
1st and 3rd Block: Friday, Dec. 21

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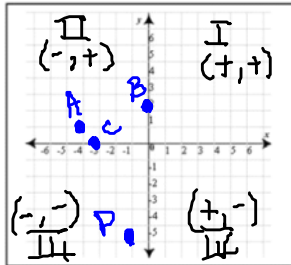
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Chapter 4 practice problems:

1) Plot and label the ordered pairs in a coordinate plane. (4.1)

- A) (-4, 1) B) (0, 2) C) (-3, 0) D) (-1, -6)



2) Without plotting the point, name the quadrant the point is in.

- a) (6, 8) I b) (-4, -15) III
 c) (5, -9) IV d) (-3, 3) II
 e) (0, 2) y axis f) (2, 0) x axis

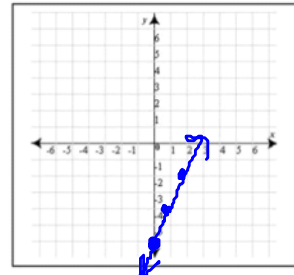
3) Rewrite the equation in function form. (4.2)

- a) $2x + y = 0$
 $-2x \quad -2x$
 $y = -2x$
- b) $5x - 2y = 20$
 $-5x \quad -5x$
 $-2y = -5x + 20$
 $-2 \quad -2$
 $y = \frac{5}{2}x - 10$
- c) $-4x - 8y = 32$
 $+4x \quad +4x$
 $-8y = 4x + 32$
 $-8 \quad -8$
 $y = -\frac{1}{2}x - 4$
- d) $\frac{2y}{2} = \frac{3x - 4}{2}$
 $y = \frac{3}{2}x - 2$

4) Use the table method to graph the following equations. (4.2)

a) $y = 2x - 6$

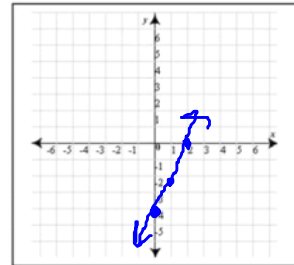
x	y
0	-6
1	-4
2	-2



b) $6x - 3y = 12$

$-6x \quad -6x$
 $-3y = -6x + 12$
 $-3 \quad -3$
 $y = 2x - 4$

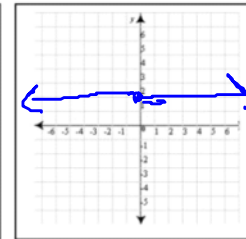
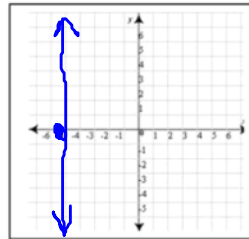
0	-4
1	-2
2	0



5) Graph the following equations. (4.3)

a) $x = -5$

b) $y = 2$

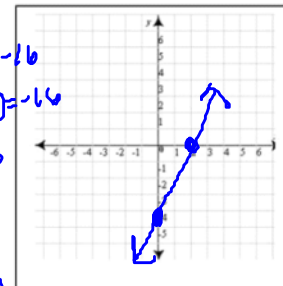


6) Graph the following equation using intercepts. (4.4)

$4y - 8x = -16$

$4y - 8x = -16$
 $4y - 8x = -16$
 $4y - 8(0) = -16$
 $4y = -16$
 $4 \quad 4$
 $y = -4$
 $(0, -4)$

$4y - 8x = -16$
 $4y - 8(2) = -16$
 $4y - 16 = -16$
 $4y = 0$
 $4 \quad 4$
 $y = 0$
 $(2, 0)$



7) Find the slope of a line passing through the following points. (4.5)

a) (1, -3), (-4, -5)

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

b) (0, -4), (5, -4)

$$y = kx$$

8) Write a direct variation equation that relates x and y. (4.6)

a) x = 3 y = 9

$$k = \frac{y}{x} = \frac{9}{3} = 3$$

b) x = 40 y = 8

$$k = \frac{y}{x} = \frac{8}{40} = \frac{1}{5}$$

$$k = \frac{y}{x}$$

$$y = 3x$$

$$m = 3 \quad b = 0$$

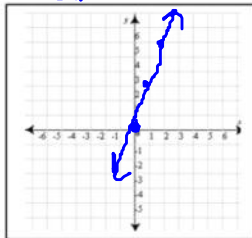
$$y = \frac{1}{5}x$$

$$m = \frac{1}{5} \quad b = 0$$

9) Graph the following direct variation equations (4.6)

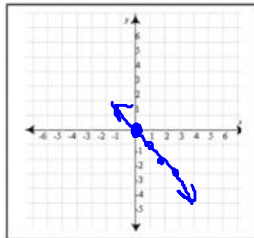
a) y = 3x

$$m = 3 \quad b = 0$$



b) y = -x

$$m = -1 \quad b = 0$$



10) Rewrite the equations in slope intercept form. Then identify the slope and y intercept. (4.7)

a) y - 4 = 3x

b) x = -y + 2

c) 2x + y = 6

$$\begin{aligned} &+y + y \\ -x + y &= 2 \\ -x &= 2 - y \\ y &= -x + 2 \end{aligned}$$

d) 5x + 8y = 32

e) -6x - 3y = 24

f) 3y = 5x + 6

11) Graph the following equations using slope intercept form. (4.7)
Solve for y first. Identify m and b. Then graph.

a) 2x + 4y = 8

$$-2x \quad -2x$$

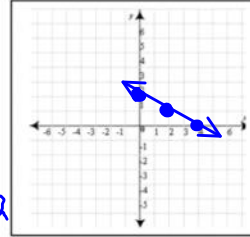
$$\frac{4y}{4} = \frac{-2x + 8}{4}$$

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

$$m = -\frac{1}{2} \quad b = 2$$

$$-\frac{1}{2} \downarrow$$

$$2 \rightarrow$$



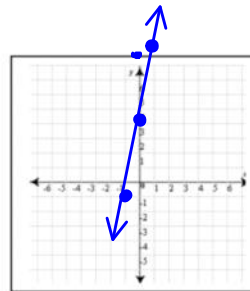
b) -5x + y = 4

$$+5x \quad +5x$$

$$y = 5x + 4$$

$$m = 5 \quad b = 4$$

$$\frac{5}{1} \uparrow$$



12) Determine whether the two lines are parallel. (4.7)

a) y = -7x + 3 and y - 7x = 10

$$m = -7 \quad b = 3$$

$$+7x \quad +7x$$

$$y = 7x + 10$$

$$m = 7 \quad b = 10$$

NOT
Parallel

b) 4x - 8y + 6 = 0 and -12x + 6y = 2

II. Distributive Property

1) $5(n+3)$

2) $(2p+6)3$

3) $-1(4-2x)$

4) $-5(a+2)$

$-4+2x$
 $2x-4$

III. Solve Equations.

1) $5y+8=-2$

2) $4x-8+x=2$

3) $10(z-2)=1+4$

4) $14d-6=17d$

$-14d -14d$
 $\frac{-6}{3} = \frac{3d}{3}$
 $-2=d$

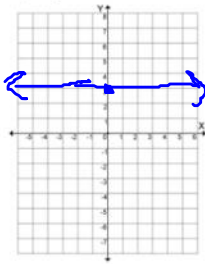
IV. Decide whether the given ordered pair is a solution of the equation.

1) $-3x+6y=12, (-4, 0)$

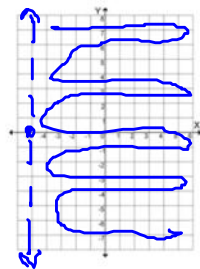
2) $x+5y=11, (2, 1)$

V. Graph linear equations or inequalities.

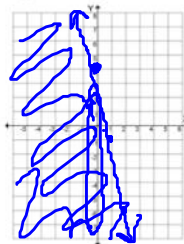
1) $y=3$



2) $x>-5$

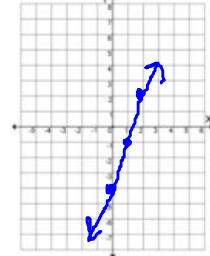


3) $5x+y=4$



$m=-5 \ b=4$
 $y \leq -5x+4$

4) $\frac{2y}{2} = \frac{6x-8}{2}$



$y=3x-4$
 $m=3$
 $b=-4$

★ VI. Find the slope of a line passing through the points.

1) $(-4, 0), (-4, 3)$

2) $(4, 9), (1, 6)$

$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{3 - 0}{-4 - -4} = \frac{3}{0} = \text{undefined}$

VII. Is the relationship a function? If so state the Domain and Range.

No +

Input	Output
2	1
4	3
4	5
8	7

Function

Input	Output
1	1
2	4
3	9
4	16

Domain $\{1, 2, 3, 4\}$
Range $\{1, 4, 9, 16\}$

Function

Input	Output
1	4
2	4
3	6
4	8

VIII. Write an equation of the line in slope-intercept form.

1) slope is -2; y-intercept is 5

$$y = -2x + 5$$

2) slope is 1; y-intercept is -4

$$y = x - 4$$

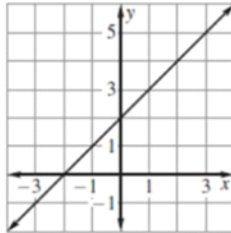
3) slope is 0; y-intercept is 2

$$y = 0x + 2$$

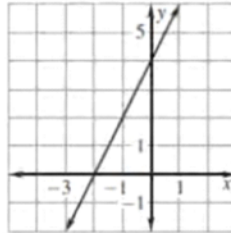
$$y = 2$$

IX. Write the equation of the line in slope-intercept form.

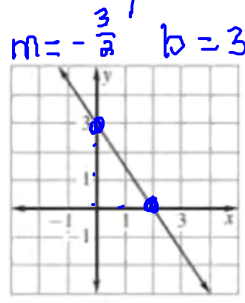
1)



2)



3)



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

X. Write an equation in slope-intercept form of the line that passes through the points

1) (4,9) (1,6)

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{6 - 9}{1 - 4} = \frac{-3}{-3} = 1$$

(1,6)

$$y = mx + b$$

$$6 = 1(1) + b$$

$$6 = 1 + b$$

$$5 = b$$

$$y = 1x + 5$$

$$\text{or}$$

$$y = x + 5$$

2) (0,7) (1,-1)

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-1 - 7}{1 - 0} = \frac{-8}{1} = -8$$

(0,7) x=0

$$y = 7$$

$$m = -8$$

$$y = mx + b$$

$$7 = -8(0) + b$$

$$7 = b$$

$$y = -8x + 7$$

XI. What is the slope of a line parallel/ perpendicular to the given line?

1) $y = 2x - 1$

$$m = 2$$

Parallel: 2

Perpendicular: $-\frac{1}{2}$

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

$$m = -\frac{1}{3}$$

Parallel: $-\frac{1}{3}$

Perpendicular: 3

3) $\frac{2y}{2} = \frac{6x - 8}{2}$

$$y = 3x - 4$$

Parallel: 3

Perpendicular: $-\frac{1}{3}$

XII. Graph the inequality on a number line.

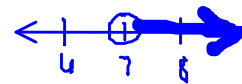
1) $x \leq -1$

2) $x \geq 4$

3) $x < 2$

4) $x > -3$

5) $7 < x$



XIII. Solve the inequality.

1) $x - 5 < -9$

2) $\frac{y}{3} \leq 6$

3) $-5x > 35$

4) $5x + 1 > 2x + 13$