Name:

## Final Exam Practice Pack – Section 7

## SLOPE-INTERCEPT FORM: y = mx + b

- > The variables in this equation are very important
  - The *m*: Is the **SLOPE** of the line, represented  $\frac{RISE}{RUN}$
  - $\circ \quad \frac{RISE}{RUN} \text{ also } \frac{CHANGE IN HEIGHT}{CHANGE IN LENGTH}$
  - The **Slope** is the **same** from any point on the line to another
  - The SLOPE stays constant
  - The **b**: Is the y intercept, where the line crosses the y axis
  - Why b and not y then?
  - You will soon find out...
  - $\circ$  Lastly, the *x* and *y*.
  - They represent the (x, y) coordinates of every possible point on the line

So, why *b* for the y - int? > Have a look at the grid > No matter where you cross the y - axis, what is the x - value? > It is always, 0 > So every y - intercept, has the coordinates: (0, b)

The *b*, is wherever **it crosses** the y - axis.



1. Map the following Coordinate (x, y) on the 2-D plane (GRID)



- 3. What does it mean to be a solution to an equation with respect to coordinates of a point?
- 4. What is the y intercept? What is the **x-coordinate** of every y intercept point? Example?

- 5. What is the x intercept? What is the **y-coordinate** of every x intercept point? Example?
- 6. For the sake of our Math Vocabulary then:

*SLOPE* = \_\_\_\_\_

- 7. Are the following points solutions to the given equations? Are they POINTS on the given LINE?
  - A) (1, -6) y = -2x + 4

B) 
$$(0, -5)$$
  $y = \frac{2}{3}x - 5$ 

C) 
$$(-2, 1)$$
  $y = -\frac{3}{2}x + 4$ 

D) (8, -2) 
$$y = -\frac{1}{8}x + 1$$

E)



## 8. What is the SLOPE and Y-INTERCEPT of the following lines?





Slope = y - int =

- 9. Graph the following lines.
- y = 2x 7a)



 $y = -\frac{3}{7}x + 9$ 

b)

y - int =













*f*) x = -5



- 10. Are the following points solutions to the given equations? Are they POINTS on the given LINE?
  - a) (-2, 4) 2x + 3y = 8
  - b) (-6, 1)  $\frac{1}{6}x + 13y = 14$
  - c) (8, -2) 2x y = 12
  - d) (-3, -4) -4x 2y = 4
- 11. Graph the following equations, use the table of values to organize your coordinates.
  - x 3y = -6

i)



 $ii) \quad 4x + 5y = 20$ 



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



x	у



12. Using your algebraic logic, manipulate the STANDARD FORM equations in to SLOPE-INTERCEPT equations and graph them.

a) 
$$2x + 3y = -9$$

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



c)

c) 
$$-12x + 5y = -10$$
  
d)  $\frac{1}{6}x + \frac{2}{3}y = -2$   
 $y = -2$ 

13. Using your algebraic logic, manipulate the SLOPE-INTERCEPT to STANDARD FORM, remember that Ax + By = C has NO FRACTIONS and A > 0

a) 
$$y = -\frac{2}{5}x - 6$$

b) 
$$y = -3x + 5$$

c) 
$$y = -5x - \frac{4}{3}$$

d) 
$$7 - 3x = y$$





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## 20. Which equation matches the graph below:



21. Which equation matches the graph below:



22. Write the equation of the following graph in SLOPE-INTERCEPT form, then manipulate it to STANDARD FORM

