REVIEW TEST 1 - Chapter 3

Linear Equations in Two Variables (Sections 3.1, 3.2, 3.3, 3.4)
1. a) What is a linear equation in two variables? Give an example.
b) How do you graph a linear equation in two variables?
c) What coordinate system is used to graph a linear equation in two variables?

2. Graph each equation on a separate rectangular coordinate system by the intercept method. Label each point and axis used.

$a)$ $y = x - 5$ b) $y = 3$ c) $3x + 4y = 12$ d) $2x - 3y = 0$

e) $x = 3y$ f) $\dfrac{3x}{4} + \dfrac{y}{2} = \dfrac{-3}{2}$ g) $x + 2(x - 3) = -1$ h) $y + 2 = \dfrac{x}{5}$

3. Let $4x - y = -1$ be a linear equation in two variables.

a) Complete each ordered pair so that it is a solution of the given equation: i) $(?, -3)$ ii) $\left(\dfrac{1}{2}, ?\right)$

b) Graph the equation using the intercepts.
c) What is the slope of the line?
d) Is the ordered pair $(0, -2)$ a solution of the equation? Justify your answer graphically and algebraically.

4. Find the slope of each line   a) $\dfrac{x}{5} - \dfrac{y}{2} = 1$;   b) $2y = 3$;   c) $x + \dfrac{1}{3}y + 1 = 3$ d) $9x + 12y = 36$

5. The distance in miles that a car is driven is given by $d = 55t$, where $t = $ nr of hours the car is driven
a) make a table of values.
b) graph the equation
c) What is the slope of the equation? (make sure to include units)
d) what is the meaning of the slope?

6. Compute the slope of the line that passes through the points: a) $P(-4, 2)$ and $Q(5, -1)$; b) $A(\dfrac{2}{3}, 100)$ and

$B(\dfrac{4}{3}, 200)$; c) $C(4, \dfrac{1}{2})$ and $D(-4, 1)$; d) $M(-2, 3)$ and $N(5, 3)$

7. Which of the following tables represent variables that are related by a linear equation? Explain why or why not? If it is linear, find the equation for the table.(Hint: Which relationships have constant slope?) Show all work.

X	Y
2	12
3	17
4	22
5	27

t	d
5	0
10	3
15	6
20	12

V	P
-3	-2
-5	3
-9	13
-15	28

8. Write an equation for the line that passes through the given point and has the given slope:$(2, -\dfrac{1}{2})$, m=4.

Then: a) put your equation into slope-intercept form; b) put your equation in standard form and integer coefficients.

9. Write an equation for the line that passes through the given point and has the given slope: $(-3, 1)$, m= $\dfrac{7}{3}$.

Then: a) put your equation into slope-intercept form; b) put your equation in standard form and integer coefficients

10. Find the slope of the line that is a) parallel ; b) perpendicular to the line through the pair of points : (-8, -4) and (3,5).

11. Find an equation of the line that passes through $(2,-3)$ and $(-4,7)$. Then put the equation in slope-intercept form and standard form with integer coefficients.

12.a) What is the slope of a line perpendicular to $3x + \dfrac{1}{6}y = \dfrac{1}{2}$?

b) Find an equation of the line that passes through the point (-1,2) and is perpendicular to $3x + \dfrac{1}{6}y = \dfrac{1}{2}$.

13. Tell whether the lines given are parallel, perpendicular, or neither:

a) $y = 3x + 2$ and $y - 2 = -\dfrac{1}{3}(x+1)$; b) a line with slope 5 and a line with slope $\dfrac{10}{2}$.
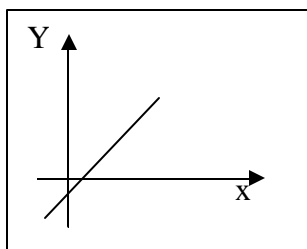
14. Match the graphs (I) – (VI) with the equations given below. (You shouldn't need to graph each equation to determine which is which!) NOTE: The x and y scales may be unequal. Show all work.

a. $y = .005x + .009$ b. $x = -py$ c. $y = \dfrac{5}{2} - \dfrac{3}{4}x$ d. $x - \sqrt{1000} = 0$ e. $3x + 4y + 10 = 0$
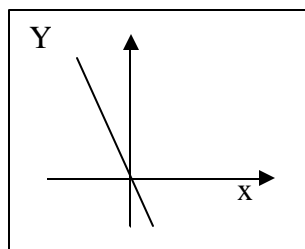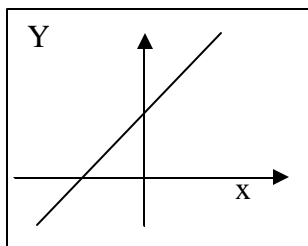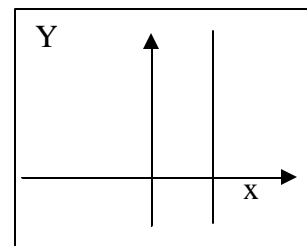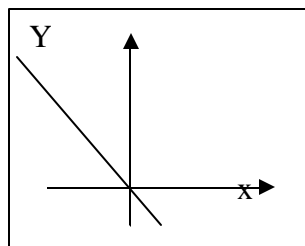
f. $y = 351x - 140$
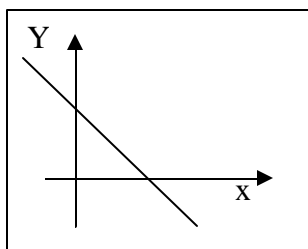
(I) (II) (III)

(IV) (V) (VI)

15. Are the lines given by these equations parallel, perpendicular or neither? Show all work.

$$y - \dfrac{2}{3}x = 0; \qquad 3y = 2x + 1$$

16. Review all exercises from Handout Sections 3.1&3.2 and Handout Section 3.3.

II Linear Inequalities in Two Variables (Section 3.5)

1. Complete each statement. It is not necessary to rewrite the entire statement.
   a) The graph of a linear inequality in two variables could be _____ or
_____.
   b) A solution of a linear inequality in two variables is_____.
   c) The graph of a linear inequality in two variables consists of _____.

IV Graphing Linear Inequalities in Two Variables (Section 3.5)
Textbook – Section 3.5: All homework problems (11, 13, 15, 19 – 29 odd, 37, 39)