Semester 2 Midterm Exam Review
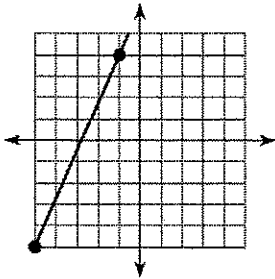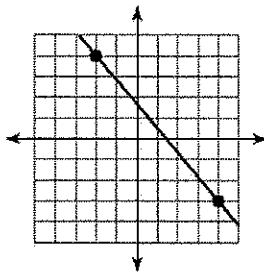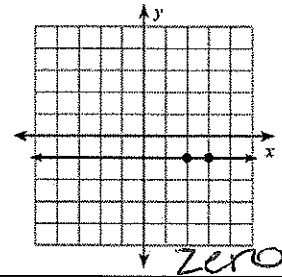
Find the slope of the line:

$$\frac{9}{4}$$

$$\frac{-7}{6}$$

zero

Find the slope

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

$$m = \frac{-5}{4}$$

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

$$m = \frac{-3}{4}$$

6). $4x + 3y = -9$

$$m = \frac{-4}{3}$$

7). $2x + 3y = 15$

$$m = \frac{-2}{3}$$

8). $(17, -6), (-11, 7)$

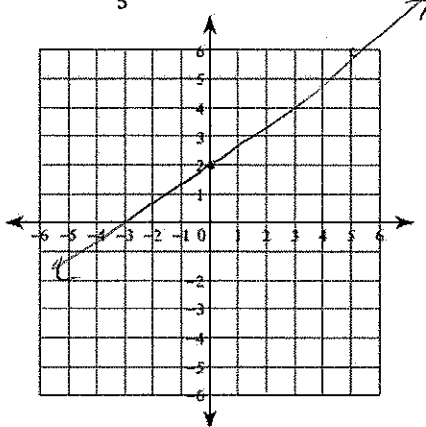$$m = \frac{-13}{28}$$

9). $(3, 4), (-4, -5)$
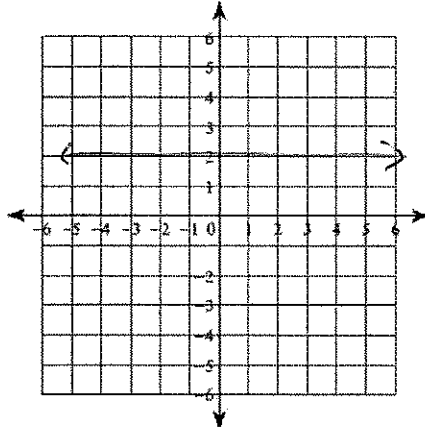
$$m = \frac{9}{7}$$

10). $(-5, 8), (-5, 2)$

$$m = 0$$

Sketch the Graph of each line:

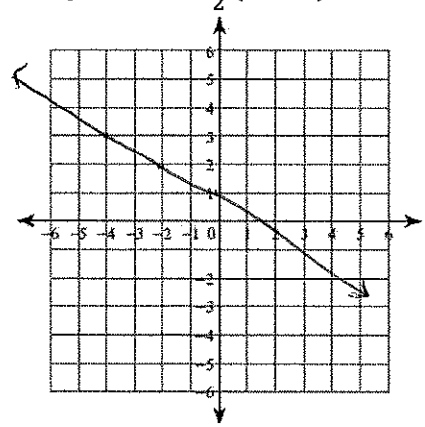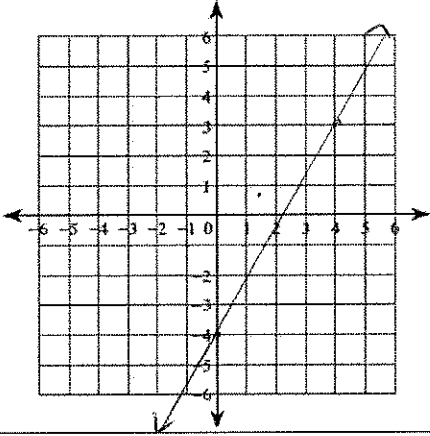11). $y = \frac{4}{5}x + 2$

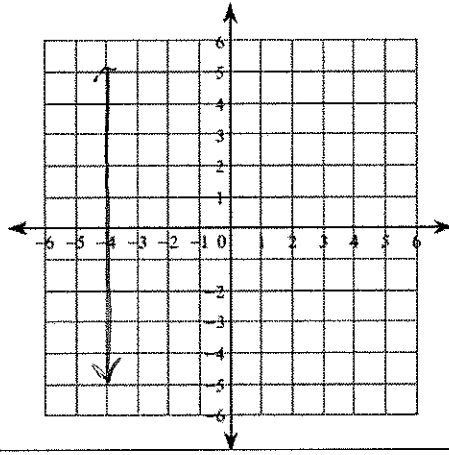12). $y = 2$

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

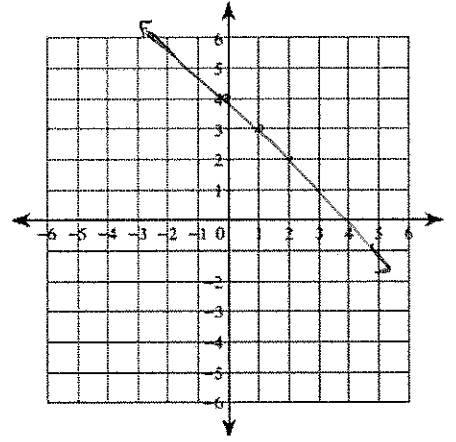## Sketch the graph of the line:
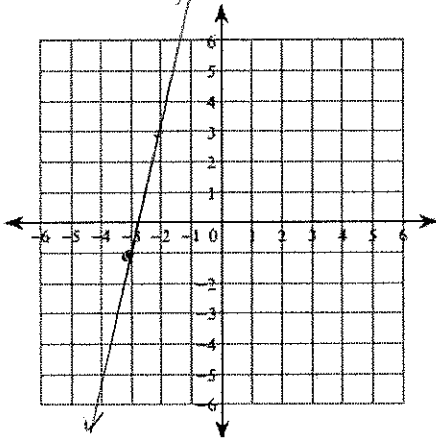
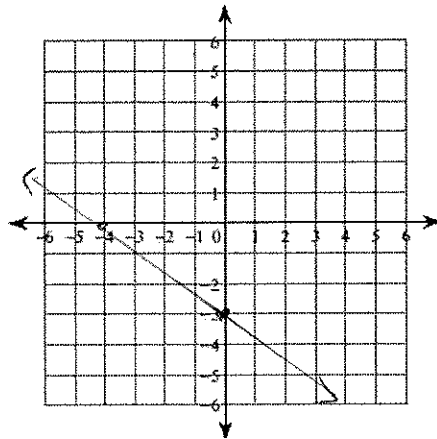**13).** $y = \frac{7}{4}x - 4$

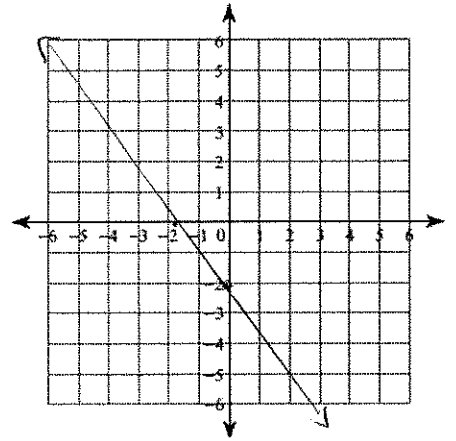**14).** x = -4

15). y = -x + 4

16). y + 1 = 4(x + 3)

17). 3x + 4y = -12
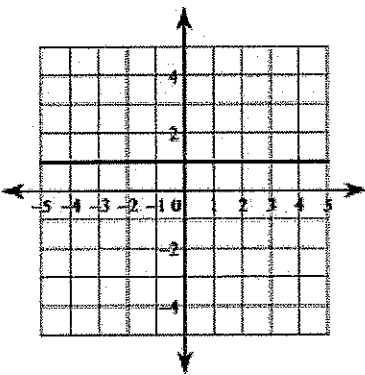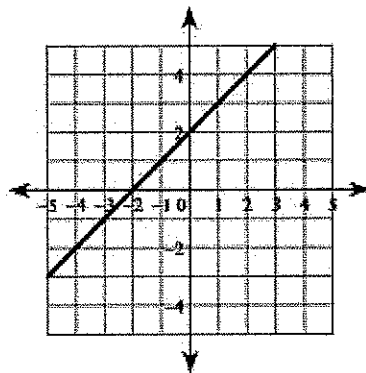*(Hint: x & y intercepts)*

18). 5x + 3y = -6

Write an equation for the line in Slope-Intercept Form

19).

y=1

20).

y = x + 2

21).

y = x + 3

Write an equation for the line in Slope-Intercept Form		
22). x − 2y = 7 $$y = \frac{1}{2}x + \frac{7}{-2}$$	23). 2x + 3y = -6 $$y = \frac{-2}{3}x - 2$$	24). 4x + y = 5 $$y = -4x + 5$$
25). Slope = -10, y–intercept = -5 $$y = -10x - 5$$	26). Slope = -5/4, y-intercept = 5 $$y = \frac{-5}{4}x + 5$$	27). (5, 2), (0, -5) $$y = \frac{7}{5}x - 5$$
28). (2, 1), (4, 3) $$y = x - 1$$	29). (1, 0), (0, -5) $$y = 5x - 5$$	
Write an equation for the line in Point-Slope Form		
30). Point = (-1, 1), slope = 1 $$y - 1 = 1(x + 1)$$	31). Point = (2, 5), slope = 2 $$y - 5 = 2(x - 2)$$	32). Point = (5, -1), slope = -3/2 $$y + 1 = \frac{-3}{2}(x - 5)$$
33). Point (-5, -3) Parallel to $y = \frac{2}{5}x - 2$ $$y + 3 = \frac{2}{5}(x + 5)$$	34). Point = (-1, 2) Parallel to $y = -\frac{3}{2}x - 2$ $$y - 2 = \frac{-3}{2}(x + 1)$$	35). Point = (-2, -4) Perpendicular to $y = -\frac{2}{9}x + 4$ $$y + 4 = \frac{9}{2}(x + 2)$$
36). Point = (-2, -4) Perpendicular to $y = -\frac{1}{2}x$ $$y + 4 = 2(x + 2)$$	37). Point = (5, -1) Parallel to y = -x - 5 $$y + 1 = -1(x - 5)$$	38). Point = (4, 5) Perpendicular to y = -x + 2 $$y - 5 = 1(x - 4)$$

Determine if the lines are parallel, perpendicular, or neither

39). $y = 3x + 2$
$2y = 6x - 6$

Parallel

40). $y = 3x + 9$
$y = \dfrac{1}{3}x - 4$

neither

41). $3x + 2y = 5$
$3y + 2x = -3$

neither

Algebra 361

D-7, Sections 6.1-6.4: Review Worksheet

Solving Systems of Equations

Name_____

Date_____Period_____

Choose the correct answer below to each question. Write your final answers on the line below.

1. If a system of linear equations has <u>infinitely many solutions</u>, then the graph of
the system is:

    A. intersecting lines   B. perpendicular lines

    C. the same line   D. parallel lines.

1. __C__

2. When solving a system by <u>substitution,</u> one should:

    A. look for coefficients that are reciprocals

    B. solve for x or y in one equation first

    C. look for coefficients that are the same or opposites

    D. always multiply by -1

2. __B__

3. If the result, when solving a system by either elimination or substitution, is $4 = 4$,
the solution is:

    A. (-5, 4)   B. Ø

    C. (4, -5)   D. infinitely many

3. __D__

4. If there are <u>no solutions</u> to a system of linear equations then the graph of that system is:

    A. intersecting lines   B. perpendicular lines

    C. the same line   D. parallel lines.

4. __D__

5. When solving a system by either elimination or substitution, what does the
solution represent?

    A. parallel lines

    B. the slope of the lines

    C. the point of intersection of the graphs of the system

    D. just the answer

5. __C__

Is the given point a solution to the system, yes or no? You must show work as proof of your answer in order to receive full credit.

6. $3x - y = 4$ (1, -1)

    $7x + 2y = -5$

7. $x + y = 3$ (2, 1)
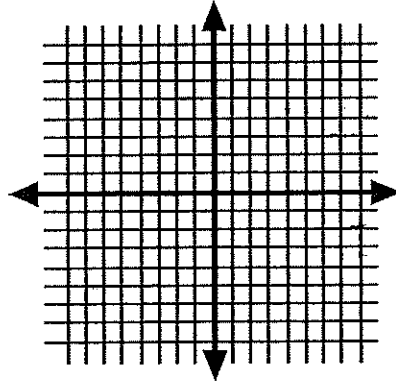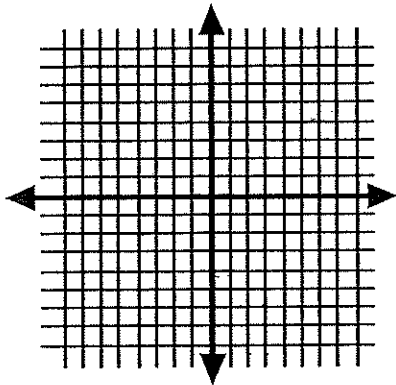
    $2x - 3y = 1$

6. __No__

7. __Yes__

Solve the system by GRAPHING. Write the solution on the line provided. use Desmos

8. $2x - y = 5$
    $y = -3x + 5$

9. $y = x - 5$
    $2x + y = 4$

8. ___(0,5)___

9. ___(3,-2)___

Solve the system by SUBSTITUTION. Write the solution on the line provided.

10. $4x - 3y = 5$
    $y = 2x - 3$

11. $5x + 3y = 8$
    $3x + y = 8$

10. ___(2,1)___

11. ___(4,-4)___

12. $x + 5y = 4$
    $2x + 10y = 8$

13. $3x - y = 4$
    $2x - 3y = -9$

12. ___Infinitely many___

13. ___(3,5)___

Solve the system by ELIMINATION. Write the solution on the line provided.

14. $x + 2y = 6$
    $x - 2y = 2$

15. $3x + 4y = 19$
    $3x + 6y = 33$

14. $(4, 1)$

15. $(-3, 7)$

16. $9x - 6y = -12$
    $-2x + 3y = -4$

17. $3x + 4y = 16$
    $2x - 3y = 22$

16. $(-4, -4)$

17. $(8, -2)$

Solve each system of equation using the METHOD OF YOUR CHOICE.

18. $4x - 3y = 1$
    $2x + y = 3$

19. $6x - 2y = 6$
    $x + 4y = 14$

18. $(1, 1)$

19. $(2, 3)$

20.
$$5x + 2y = 7$$
$$3x + 7y = 10$$

21.
$$2x - 7y = 3$$
$$5x - 4y = -6$$

20. $(1, 1)$

21. $(-2, -1)$

Set up a system of equations that represents each situation. Then solve using the method of your choice.

22. A bicycle store costs $2400 per month to operate. The store pays an average of $60 per bike. The average selling price of each bicycle is $120. How many bicycles must the store sell each month to break even?

40 Bikes

23. The sum of two numbers is 27. The larger number is three more than the smaller number. What are the two numbers?

12, 15

24. You have $6000 to invest in two stock funds. The first fund pays 5% annual interest and the second account pays 9% annual interest. If after a year you have made $380 in interest, how much money did you invest in each account?