

Test 1
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Math 097

Name: KEY

You know that I write slowly. This is chiefly because I am never satisfied until I have said as much as possible in a few words, and writing briefly takes far more time than writing at length.

Johann Carl Friedrich Gauss (1777 - 1855)
German mathematician

No Graphing Calculators
No work = no credit

Warm-ups (1 pt each): $(-1)^2 = \underline{1}$ $-1^2 = \underline{-1}$ $1+1 = \underline{2}$

1.) (2 pts) Solve: $17 - 3(5 - 2\beta) = 8 + 4\beta$.

$$17 - 15 + 6\beta = 8 + 4\beta$$

$$2\beta = 6$$

$$\underline{\beta = 3}$$

2.) (2 pts) Solve: $\frac{3x}{4} - \frac{1}{3} = 1 - \frac{2}{3}\left(x - \frac{1}{6}\right)$.

$$\Rightarrow \frac{3x}{4} - \frac{1}{3} = 1 - \frac{2}{3}x + \frac{2}{18}$$

LCD = 36

$$\Rightarrow 27x - 12 = 36 - 24x + 4$$

$$\Rightarrow 51x = 52$$

$$\underline{x = 52/51}$$

3.) (2 pts) Solve: $y = m \cdot x + b$ for b .

$$\Rightarrow b = y - mx$$

4.) (2 pts) Solve the inequality: $-2(4x + 5) \leq -7x - 13$.

$$\Rightarrow -8x - 10 \leq -7x - 13$$

$$\Rightarrow 3 \leq x$$

$$x \geq 3$$

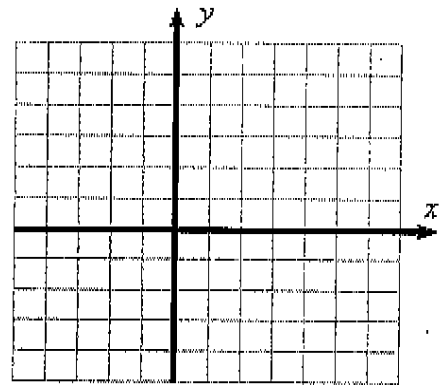
$$\underline{3 \leq x}$$

5.) (1 pt) Write the equation of the line that includes the points represented in the table.

x	2	2	2
y	-2	1	3

Hint: Plot the points.

$X = 2$



6.) (2 pts) What is the slope of a line perpendicular to the line: $y = -7x + 2$.

$\frac{1}{7}$

7.) (2 pts) Find the distance between the points $A(1,2)$ and $B(4,6)$.

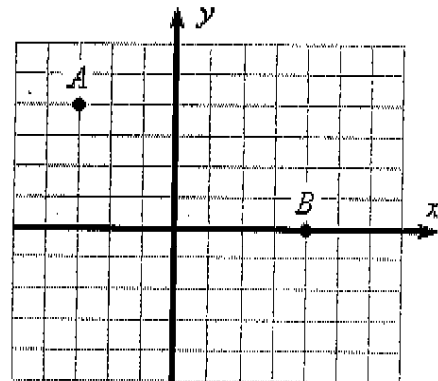
$D = \sqrt{(6-2)^2 + (4-1)^2}$

5

8.) (2 pts) Answer the following questions.

a.) In what quadrant is point A? II

b.) What are the coordinates of point B? (4,0)



9.) (2 pts) Solve: $|2x - 8| = 18$.

$\Rightarrow 2x - 8 = 18$ OR $2x - 8 = -18$

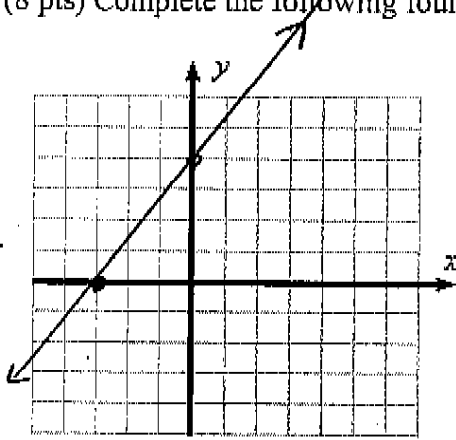
$\Rightarrow 2x = 26$ OR $2x = -10$

$\Rightarrow x = 13$ OR $x = -5$

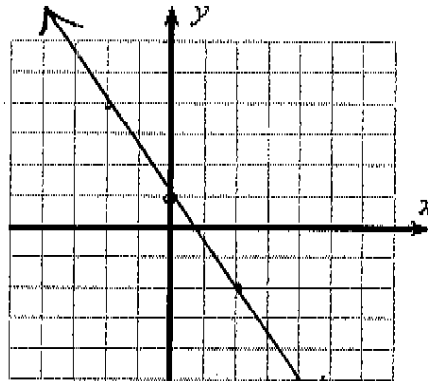
$x = -5$ OR $x = 13$

10.) (8 pts) Complete the following four problems regarding linear equations.

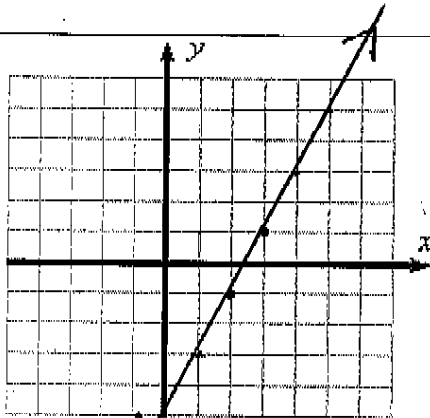
x	y
0	4
-3	0



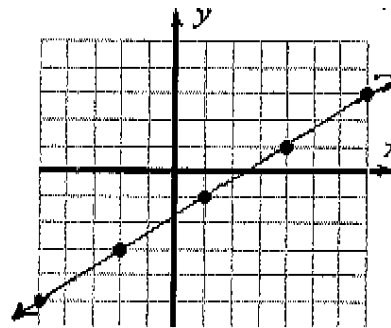
a.) Graph $-4x + 3y = 12$



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



c.) Graph $y + 1 = 2(x - 2)$



Find the slope of the linear equation.

d.) The slope is: 2/3

11.) (2 pts) Solve: $-4 + 5|2x - 4| < 36$.

$$\Rightarrow 5|2x - 4| < 40$$

$$\Rightarrow |2x - 4| < 8$$

$$\Rightarrow -8 < 2x - 4 < 8$$

$$\Rightarrow -4 < 2x < 12$$

$$\Rightarrow -2 < x < 6$$

Solution: $-2 < x < 6$

12.) (2 pts) Solve: $|x| + 2 \geq 7$

$$\Rightarrow |x| \geq 5$$

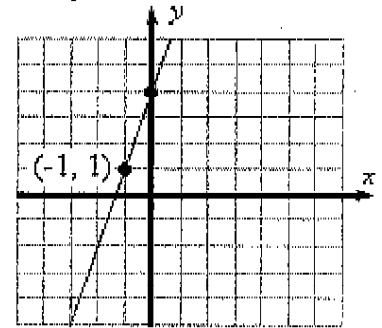
Solution: $x \geq 5$ or $x \leq -5$

13.) (2 pts) Find the slope of the line through the point $A(2, -3)$ and $B(0, 2)$.

$$m = \frac{2 - (-3)}{0 - 2}$$

Solution: $m = -\frac{5}{2}$

14.) (2 pts) Find the equation of the graphed line and express your solution in any form.



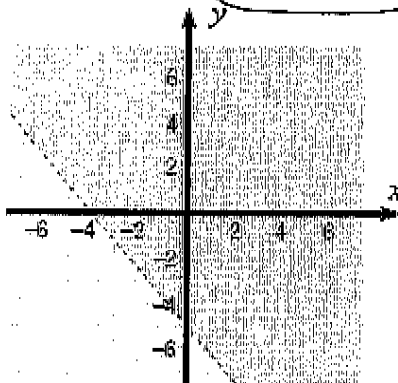
$$\begin{aligned} -3x + y &= 4 \\ y &= 3x + 4 \end{aligned}$$

Solution: $y - 1 = 3(x + 1)$

15.) (2 pts) Circle the inequality below that has a solution represented in the given graph?

a.) $5x + 4y \geq -20$ c.) $5x + 4y \leq -20$

b.) $5x + 4y < -20$ d.) $5x + 4y > -20$



16.) (2 pts) Graph the inequality $y \leq 2x - 1$

