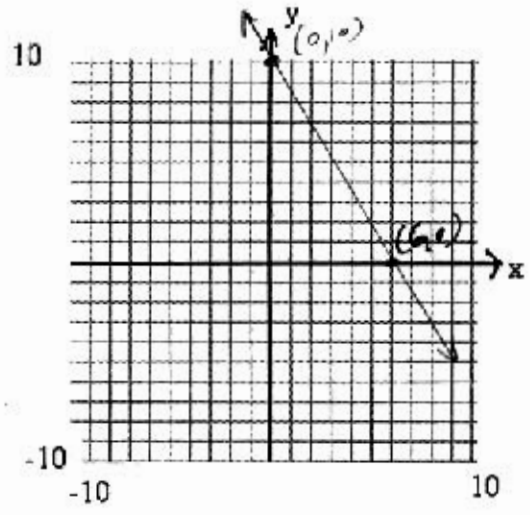


100

I. Accurately graph each of the following. Label at least 2 points on each graph.

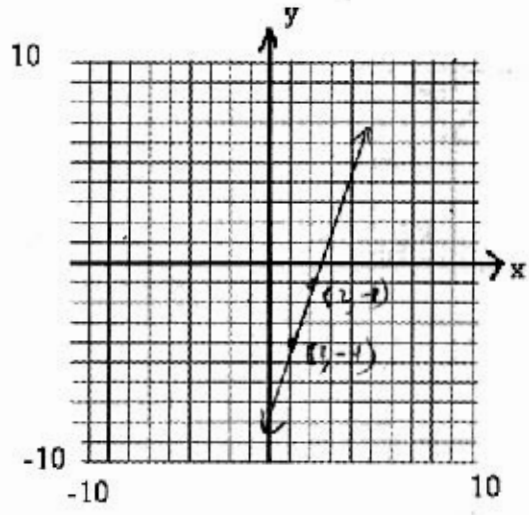
$5x = 30$
 $x = 6$
 $(6, 0)$

1. $5x + 3y = 30$ $(0, 10)$



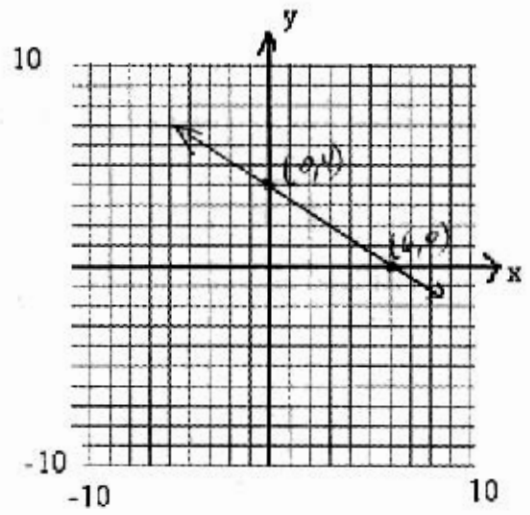
5 ea

2. $y + 4 = 3(x - 1)$ $(1, -4)$ $m = 3$

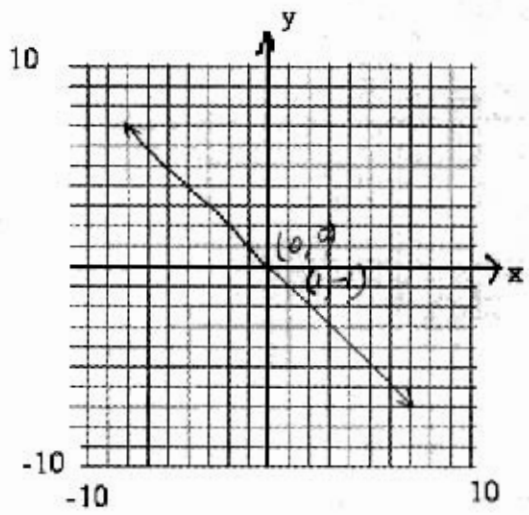


$2x = 12$
 $x = 6$
 $(6, 0)$

3. $2x + 3y = 12$ $(0, 4)$

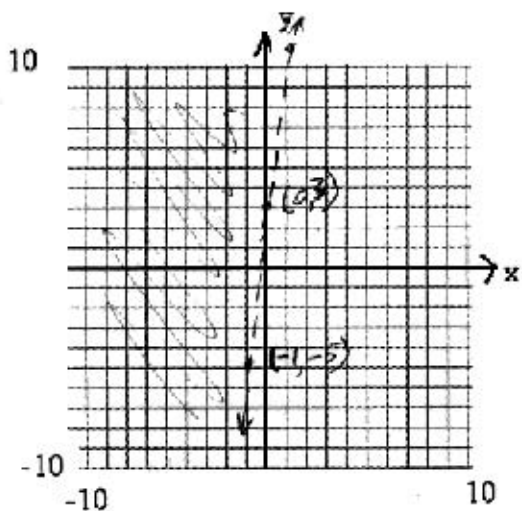


4. $x + y = 0$ $x = -y$ $y = -x$

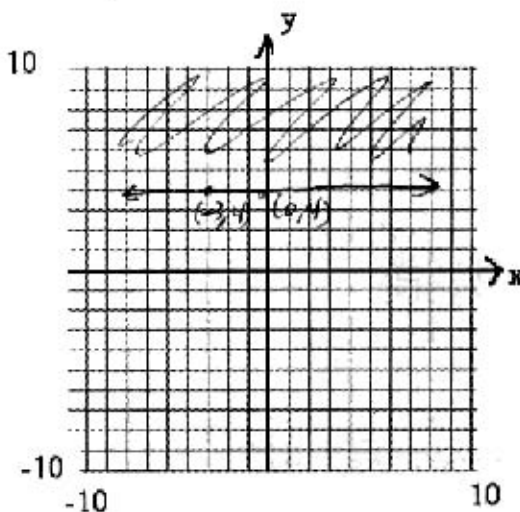


1. Graphing continues – remember to be accurate. Label at least 2 points on each graph.

5. $y > 8x + 3$ $0 > 3$
F

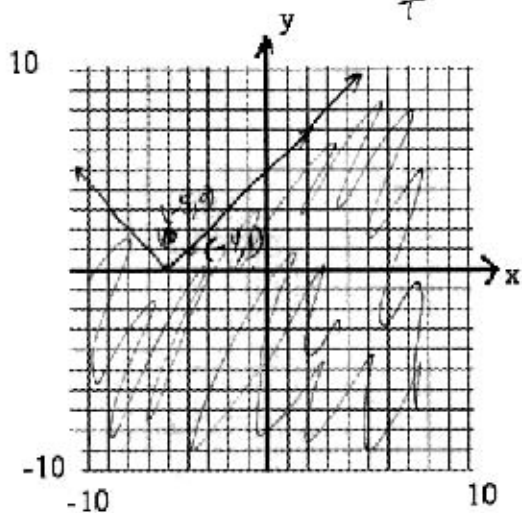


6. $y \geq 4$



5 or

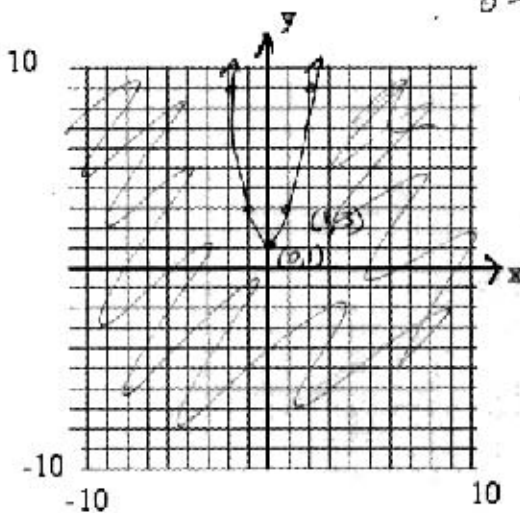
7. $y \leq |x + 5|$ $0 \leq |0 + 5|$
 $0 \leq 5$
T



8. $y \leq 2x^2 + 1$

x	-2	-1	0	1	2
y	3	1	1	3	9

$0 \leq 2(0)^2 + 1$
 $0 \leq 1$
T



II. Write equations for each of the following – use the most appropriate form.

1. A line with a slope of $-\frac{3}{4}$ and a y-intercept of -8

4 $y = -\frac{3}{4}x - 8$

2. The line containing the points:

X	-4	-2	-1	1	2
Y	16	12	10	6	4

4 $m = \frac{16-12}{-4-2} = \frac{4}{-2} = -2$

$y = -2x + b$
 $6 = -2(1) + b$ $b = 8$

$y = -2x + 8$

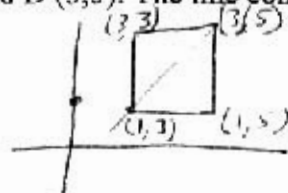
3. The line passing through (-8,7) and (-5,6)

$y = -\frac{1}{3}x + b$
 $7 = -\frac{1}{3}(-8) + b$
 $\frac{21}{3} = \frac{8}{3} + b$
 $b = \frac{13}{3}$

$m = \frac{7-6}{-8-5} = \frac{1}{-3} = -\frac{1}{3}$

$y - 7 = -\frac{1}{3}(x + 8)$
 $y = -\frac{1}{3}x + \frac{13}{3}$

4. A line is parallel to a diagonal of a square with vertices A (1,3), B (1,5), C (3,3), and D (3,5). The line contains the point (0,3) and has a positive slope.



$m = \frac{5-3}{3-1} = \frac{2}{2} = 1$

$y = x + 2$
 $y = x + 3$

5. The line with an x-intercept of 7 and y-intercept of 4.

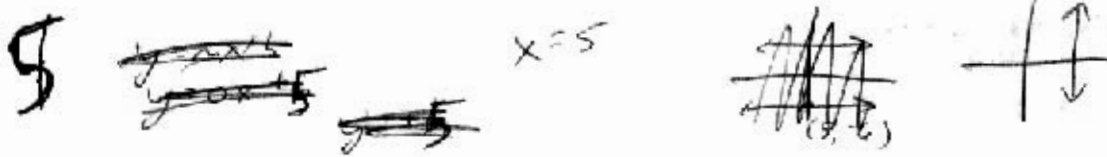
(7,0)

(0,4)

$m = \frac{4-0}{0-7} = \frac{4}{-7}$

$y = -\frac{4}{7}x + 4$

6. A line passing through (5,-6) and parallel to the y-axis.



III. Answer the following – show work.

1. A line has the slope of $-\frac{2}{3}$. One of the points on the line is (-4,3) and another is (k,2). Find k.

$\frac{3-2}{-4+\frac{5}{2}} = \frac{1}{-\frac{3}{2}}$
 $-\frac{2}{3} = \frac{1}{-\frac{3}{2}}$

$m = \frac{y_2 - y_1}{x_2 - x_1}$
 $-\frac{2}{3} = \frac{3-2}{-4-k}$

$-\frac{2}{3} \times -4 - k$
 $3 = -2(-4 - k)$
 $3 = 8 + 2k$
 $-5 = 2k$
 $k = -\frac{5}{2}$

2. Boiling water (100°C) is taken off of a burner. It is placed in the refrigerator and cools at a rate of 12°C/min. A) How long until the temperature reaches 28°C?

4

$$m = -12 \quad y = -12x + 100 \quad -72 = -12x \quad \boxed{x = 6 \text{ min}}$$

B) What is the water's temperature after 2 minutes?

4

$$y = -12x + 100 \\ y = -12(2) + 100 \\ y = -24 + 100 \\ y = 76^\circ\text{C}$$

3. What is the slope of a horizontal line? 0 A vertical line? undef.

4

4. Find the slope of the line through the points (3,1) and $(\frac{1}{5}, \frac{2}{3})$.

5

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{1 - \frac{2}{3}}{3 - \frac{1}{5}} = \frac{\frac{1}{3}}{\frac{14}{5}} = \frac{1}{3} \cdot \frac{5}{14} = \frac{5}{42}$$

5. Determine whether (-21,12), (-2,1), and (20,-10) are collinear. Show me why or why not.

5

$$m = \frac{12-1}{-21-2} = \frac{11}{-19} \quad y = -\frac{11}{19}x - 6 \quad y = -\frac{11}{19}x + \frac{41}{19} \\ 1 = -\frac{11}{19}(2) + 6 \quad -10 = -\frac{11}{19}(20) + \frac{41}{19} \\ \frac{19}{19} = \frac{-22}{19} + 6 \quad \frac{-190}{19} = \frac{-220}{19} + \frac{41}{19} \\ \frac{6}{19} = \frac{41}{19} \quad \frac{-190}{19} \neq \frac{-179}{19} \quad \therefore \text{not on same line}$$

6. Change $y = \frac{1}{3}x - \frac{5}{8}$ to general form.

5

$$y - \frac{1}{3}x = -\frac{5}{8} \\ \left[-\frac{1}{3}x + y = -\frac{5}{8}\right] \cdot 3 \quad 8x - 24y = 15 \\ \left[x - 3y = +\frac{15}{8}\right] \cdot 8$$

EXTRA CREDIT: Graph the following - you must show me accurate points so use a table of values with enough points to see the shape. No points = no credit.

4

$$y \leq -(x-1)^2 + 5 \cap x - 2y < 6 \\ \begin{array}{c} \text{OCC} \\ \text{T} \end{array} \\ \begin{array}{c} x - 2y = 6 \\ x = 6 \quad -2y = 6 \\ \quad \quad \quad y = -3 \\ (6, 0) \quad (0, -3) \end{array} \\ \begin{array}{c} 0 \leq 0 + 5 \\ 0 \leq 5 \\ \text{T} \end{array}$$

x	-1	0	1	2	3
y	1	4	5	4	1

