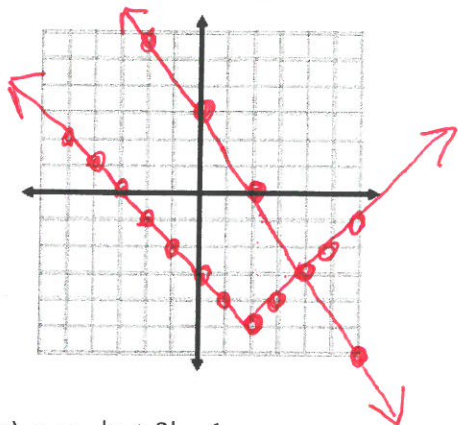


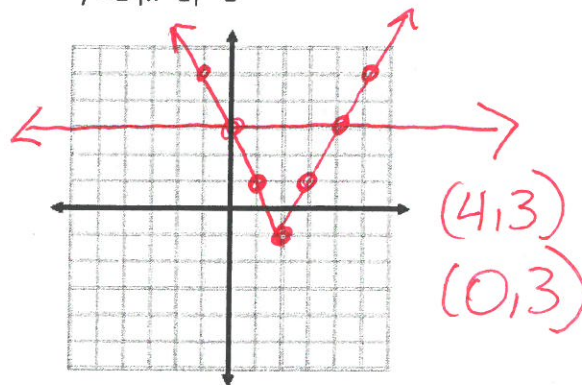
1) Solve the systems of equations by graphing.

a) $3x + 2y = 6$
 $y = |x - 2| - 5$ $y = -\frac{3}{2}x + 3$



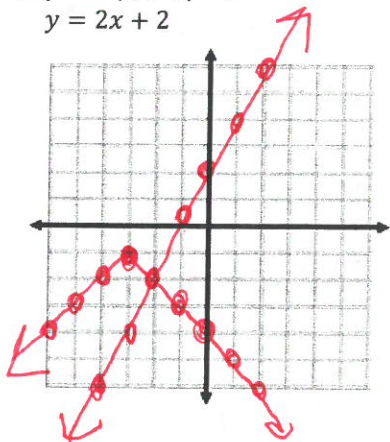
$(4, -3)$

b) $y = 3$
 $y = 2|x - 2| - 1$



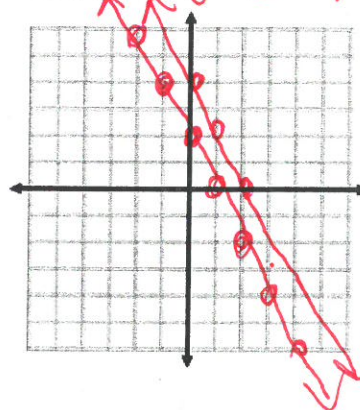
$(4, 3)$
 $(0, 3)$

c) $y = -|x + 3| - 1$
 $y = 2x + 2$



$(-2, -2)$

d) $6x + 3y = 6$
 $2x + y = 4$ $y = -2x + 2$
 $y = -2x + 4$



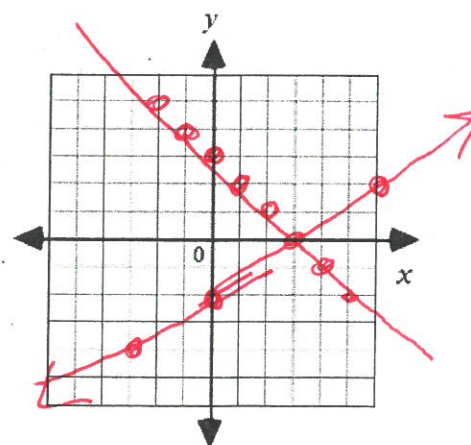
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2) Graph the system of equations on the grid provided using the x and y intercepts.

Estimate the solution to this system. $\begin{cases} 4x - 6y = 12 \\ 2x + 2y = 6 \end{cases}$

Estimated Solution: $(3, 0)$

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



3) Besides graphing, a system of equations could also be solved by either elimination or substitution. Choose one of these other methods for solving the system of equations in #2 (instead of graphing). Use this method to find the exact solution to the above system.

Exact Solution: $(3, 0)$

$$\begin{array}{r} 4x - 6y = 12 \\ -4x - 4y = -12 \\ \hline -10y = 0 \quad | \quad y = 0 \end{array}$$

$$\begin{array}{r} 4x - 6(0) = 12 \\ 4x = 12 \\ x = 3 \end{array}$$

For questions 4-6, set up a system of equations that represents the problem and solve using either substitution or elimination.

4) A test has twenty questions worth 100 points. The test consists of True/False questions worth 3 points each and multiple choice questions worth 11 points each. How many multiple choice questions are on the test?

15 T/F
5 M/C

$$\begin{aligned} x + y &= 20 \\ 3x + 11y &= 100 \end{aligned}$$

$$\begin{aligned} -3x - 3y &= -60 \\ 3x + 11y &= 100 \end{aligned}$$

$$8y = 40$$

$$\boxed{x=15} \quad \boxed{y=5}$$

5) The school that Stefan goes to is selling tickets to a choral performance. On the first day of ticket sales the school sold 3 senior citizen tickets and 1 child ticket for a total of \$30. The school took in \$50 on the second day by selling 4 senior citizen tickets and 3 child tickets. Find the price of a senior citizen ticket and the price of a child ticket.

SC = 6
C = 8

$$\begin{aligned} 3x + y &= 30 \\ 4x + 3y &= 50 \end{aligned}$$

$$\begin{aligned} 4x + 3y &= 50 \\ -9x - 3y &= -90 \end{aligned}$$

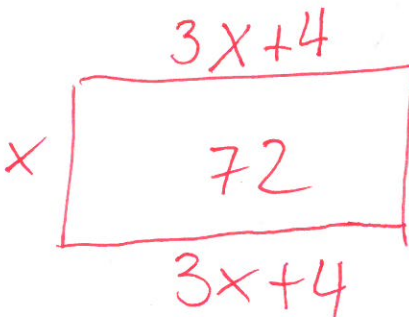
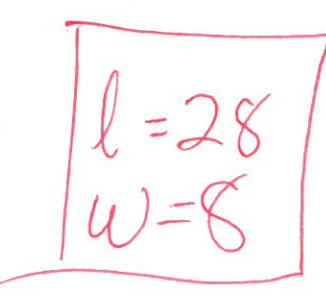
$$-5x = -40$$

$$\boxed{y=6} \quad \boxed{x=8}$$

6) The length of Sally's garden is 4 meters greater than 3 times the width. The perimeter of her garden is 72 meters. What are the dimensions of Sally's garden? (12 points)

$$8x + 8 = 72$$

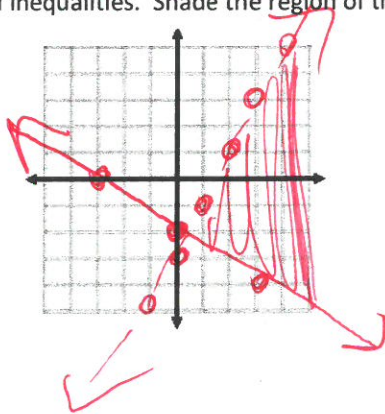
$$8x = 64$$

$$\boxed{x=8}$$



7) Graph the system of inequalities. Shade the region of the graph that makes all equations true.

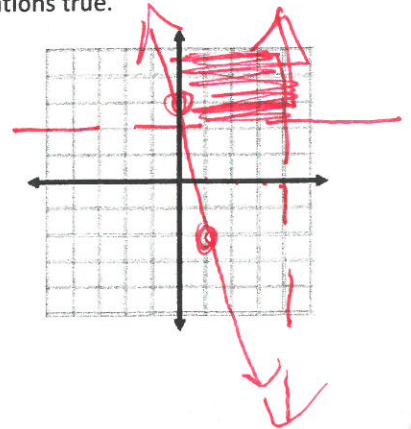
a)

$$\begin{aligned} y &< 2x - 3 \\ y &\geq \frac{-2}{3}x - 2 \end{aligned}$$



b)

$$\begin{aligned} y &\geq -5x + 3 \\ y &> -2 \\ x &< 4 \end{aligned}$$

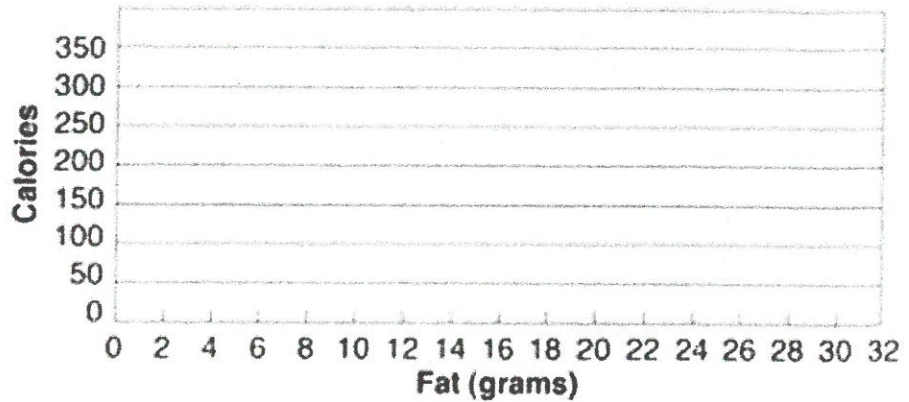


- 8) This table represents the calories and Fat in grams of meat and fish.

Calories and Fat Per Portion of Meat & Fish

	Fat (grams)	Calories
Fish sticks (breaded)	3	50
Shrimp (fried)	9	190
Tuna (canned in oil)	7	170
Ground beef (broiled)	10	185
Roast beef (relatively lean)	7	165
Ham (light cure, lean and fat)	19	245

Calories and Fat Per Portion of Meat and Fish



- Make a scatter plot to represent this data.
- Draw the line of best fit.
- Estimate the equation of the line of best fit. Show work below.

- Use a graphing calculator to find the actual equation of the line of best fit.

$$y = 10.33x + 72.72$$

- Use the actual equation of the line of best fit to predict calories of a meat that contains 15 grams of fat. Show work below.

- Use the actual equation of the line of best fit to determine approximately how many grams of fat are in a meat with 400 calories. Show work below.

- 9) Solve the following system of equations by elimination:

$$a) \begin{cases} 12x - 3y = -9 \\ -4x + y = 3 \end{cases} + 3$$

$$\begin{array}{r} 12x - 3y = -9 \\ -12x + 3y = 9 \\ \hline 0 = 0 \end{array}$$

$$0 = 0$$

IS

$$b) \begin{cases} 5x + 5y = 5 \\ 5x + 3y = 4.2 \end{cases}$$

$$2y = 0.8$$

$$\boxed{x = 0.6 \quad y = 0.4}$$

10) Solve the following system of equations by substitution:

a) $\begin{cases} 2x + 5y = -5 \\ x + 3 = 3 - 3y \end{cases}$

$2(3-3y) + 5y = -5$

$6 - 6y + 5y = -5 \quad | \quad x = -30$

$(-30, 11) \quad -y = -11 \quad | \quad y = 11$

b) $\begin{cases} 3x + 2y = 11 \\ 4x + y = -2 \end{cases}$

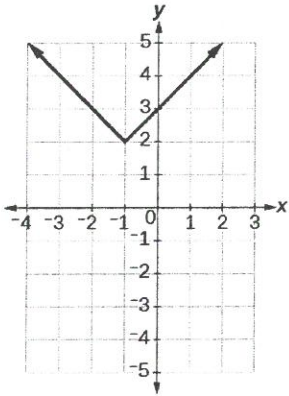
$3x + 2y = 11$
 $-8x - 2y = 4$

$5x = 15$

$x = 3 \quad y = -14$

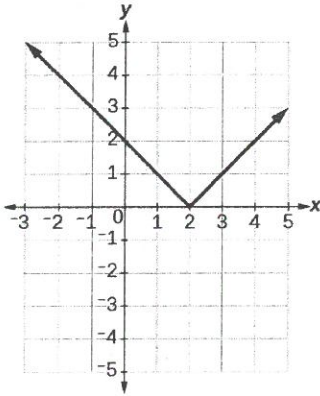
$(3, -14)$

11) State the domain and range of the following functions:



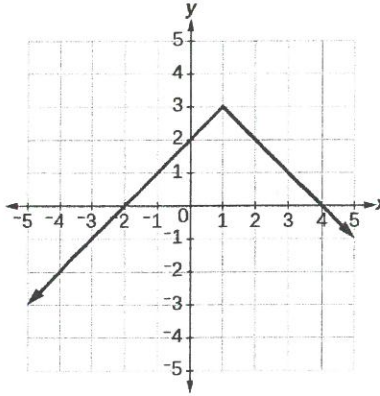
(a)

D: ALL
R: $y \geq 2$



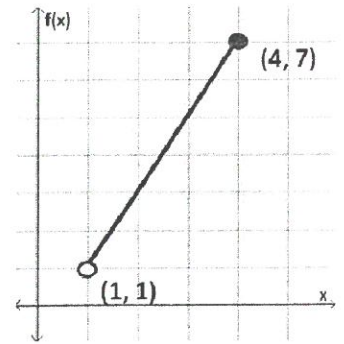
(b)

D: ALL
R: $y \geq 0$



(c)

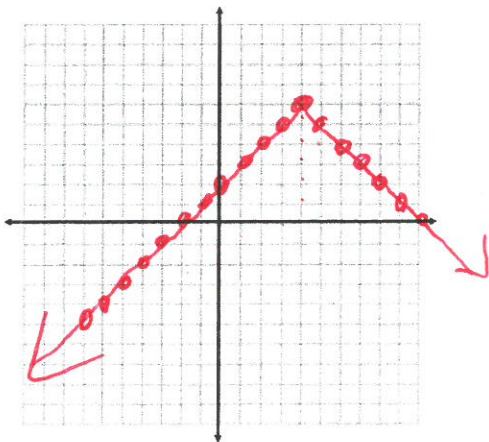
D: ALL
R: $y \leq 3$



(d)

D: $1 < x \leq 4$
R: $1 < y \leq 7$

12) Investigate the function $f(x) = -|x - 4| + 6$.



- Parent Function: $y = |x|$
- Horizontal Shift: right 4
- Vertical Shift: up 6
- Locator Pt (Vertex): (4, 6)
- Domain: ALL
- Range: $y \leq 6$
- Line of Symmetry: $x = 4$
- Opens: Up or Down Down
- Compressed or Stretched or Neither Neither