

1) (5 points) Solve the following equation.

$$8 - 4(2x - 3) + 5x = 3(4x - 3) - 3$$

$$8 - 8x + 12 + 5x = 12x - 9 - 3$$

$$-3x + 20 = 12x - 12$$

$$-15x = -32$$

$$x = \frac{32}{15}$$

2) (4 points) Solve for a in the equation given below.

$$ab - c(2 - a) = b(a - 3d)$$

$$ab - 2c + ac = ab - 3bd$$

$$ab + ac - ab = 2c - 3bd$$

ALL TERMS
INVOLVING a
ON LEFT.

$$\frac{ac}{c} = \frac{2c - 3bd}{c}$$

$$a = \frac{2c - 3bd}{c}$$

NOTE: IF

$$ab - ac = 3 + d - 5e$$

$$\frac{a(b-c)}{b-c} = \frac{3+d-5e}{b-c}$$

$$a = \frac{3+d-5e}{b-c}$$

3) (5 points) Solve the inequality given below. Graph the solution set.

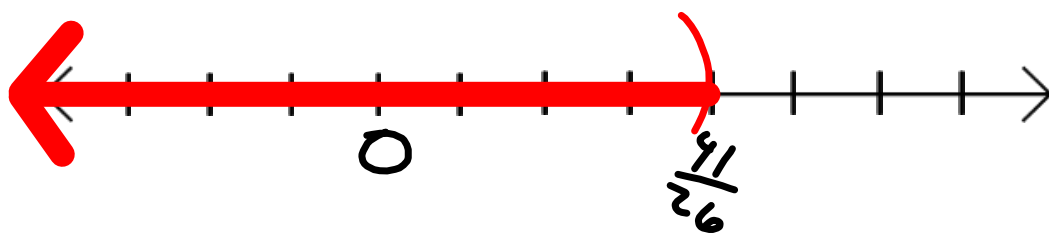
$$4(5x - 7) - 6 < -2(3x - 4) - 1$$

$$20x - 28 - 6 < -6x + 8 - 1$$

$$20x - 34 < -6x + 7$$

$$26x < 41$$

$$x < \frac{41}{26}$$



4) (4 points) Solve the following Equation.

$$|5x - 11| + 2 = 7$$

$$|5x - 11| = 5$$

$$5x - 11 = 5$$

$$5x = 16$$

$$x = \frac{16}{5}$$

$$5x - 11 = -5$$

$$5x = 6$$

$$x = \frac{6}{5}$$

$$x = \frac{16}{5}, \frac{6}{5}$$

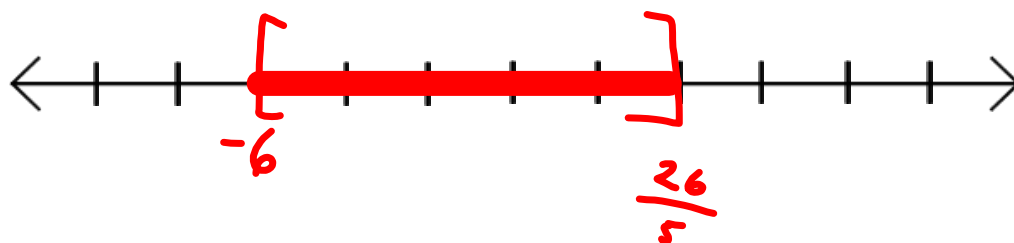
5) (5 points) Solve and graph

$$|5x + 2| \leq 28$$

$$\begin{array}{ccc} -28 & \leq & 5x+2 & \leq & 28 \\ \underline{-2} & & \underline{-2} & & \underline{-2} \end{array}$$

$$-30 \leq 5x \leq 26$$

$$-6 \leq x \leq \frac{26}{5}$$



6) (5 points) Solve and graph

$$5|3w + 2| - 3 > 7$$

$$\frac{5|3w + 2|}{5} > \frac{10}{5}$$

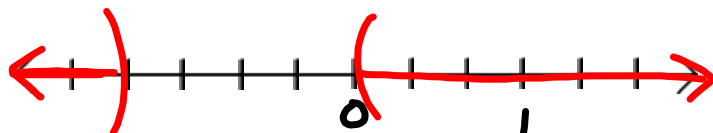
$$|3w + 2| > 2$$

THIS MUST BE MORE THAN 2 UNITS FROM 0.
IT CAN BE > 2 OR < -2

$$3w + 2 < -2 \quad \text{OR} \quad 3w + 2 > 2$$

$$3w < -4 \quad 3w > 0$$

$$w < -\frac{4}{3} \quad \text{OR} \quad w > 0$$



7) (5 points) Find the equation of the line passing through the points $(-2, 5)$ and $(\frac{1}{2}, \frac{-4}{3})$.

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-\frac{4}{3} - 5}{\frac{1}{2} - (-2)} = \frac{-\frac{19}{3}}{\frac{5}{2}}$$

$$= \frac{-19}{3} \cdot \frac{2}{5} = \frac{-19 \cdot 2}{3 \cdot 5} = \frac{-38}{15}$$

$$y = \frac{-38}{15}x + b$$

$$5 = \frac{-38}{15}(-2) + b$$

$$5 = \frac{76}{15} + b$$

$$b = -\frac{1}{15}$$

$$y = -\frac{38}{15}x - \frac{1}{15}$$

8) (5 points) Find the equation of the line passing through the point $(-4, -3)$ and that is parallel to the line $4x - 7y = 9$.

$$4x - 7y = 9$$

$$-7y = -4x + 9$$

$$y = \frac{4}{7}x - \frac{9}{7}$$

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

$$m_{||} = \frac{4}{7}$$

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

$$\text{At } (-4, -3)$$

$$-3 = \frac{4}{7}(-4) + b$$

$$-3 = -\frac{16}{7} + b$$

$$b = -\frac{5}{7}$$

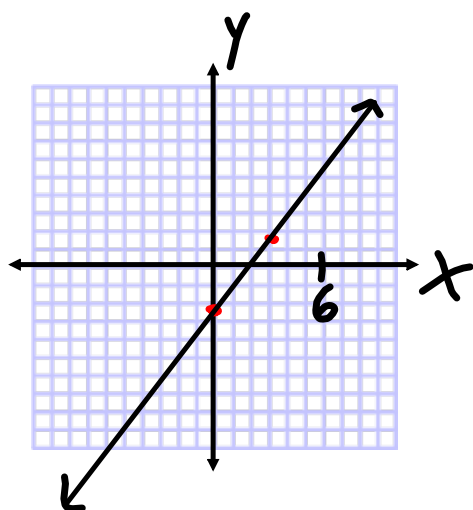
$$y = \frac{4}{7}x - \frac{5}{7}$$

9) (5 points) Graph the linear equation given below.

$$4x - 3y = 7$$

$$-3y = -4x + 7$$

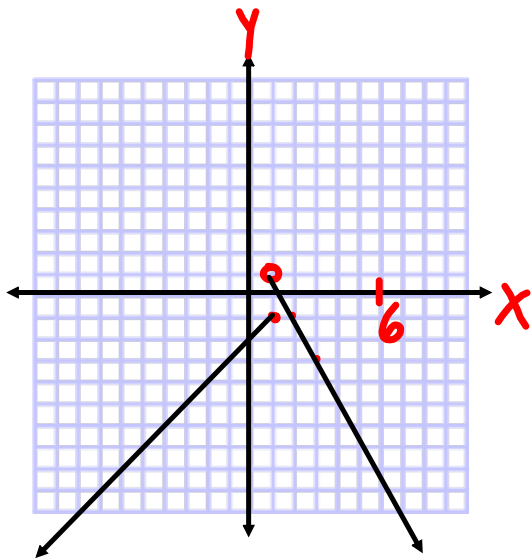
$$y = \frac{4}{3}x - \frac{7}{3}$$



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10) (6 points) Graph the piecewise function given below.

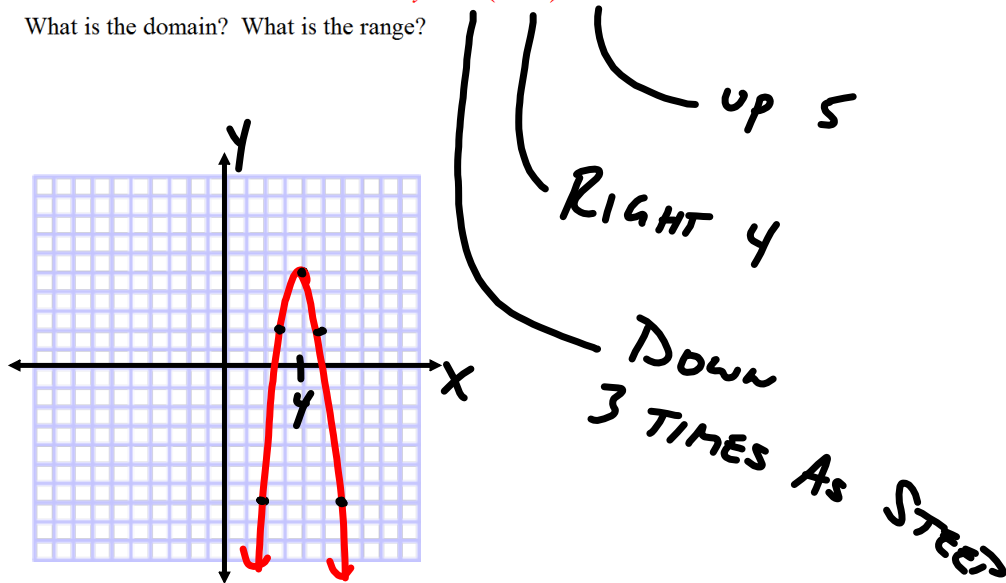
$$f(x) = \begin{cases} x - 2 & \text{if } x \leq 1 \\ -2x + 3 & \text{if } x > 1 \end{cases}$$



11) (6 points) Graph the equation given below by using translations (Horizontal and Vertical shifting).

$$y = -3(x - 4)^2 + 5$$

What is the domain? What is the range?



12) (5 points) Graph the inequality given below.

