NO WORK = NO CREDIT!!!.....SHOW ALL WORK!

1-4. Solve each of the following equations or inequalities and sketch the solution on a number line.

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

$$1(x+3) = 2(x-4)$$
$$x+3 = 2x-8$$
$$-x \qquad -x$$
$$3 = x-8$$
$$+8 \qquad +8$$
$$11 = x$$

Solution: $x = 11$

2. $-2 \le 3x+1 < 13$

$$-1 \quad -1 \quad -1$$
$$\frac{-3}{3} \le \frac{3x}{3} < \frac{12}{3}$$
$$-1 \le x < 4$$

Solution: $-1 \le x < 4$

3. $3(x-2)+5 \ge 7+x$

$$3x-6+5 \ge 7+x$$
$$3x-1 \ge 7+x$$
$$-x \qquad -x$$
$$2x-1 \ge 7$$
$$+1 \qquad +1$$
$$\frac{2x}{2} \ge \frac{8}{2}$$
$$x \ge 4$$

Solution: $x \ge 4$

4. $|x+2|+1 = 3x+2$

$$-1 \qquad -1$$
$$|x+2| = 3x+1$$
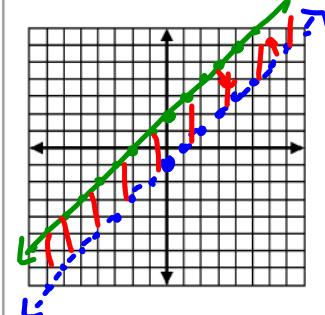
$$x+2 = 3x+1 \quad \text{or} \quad x+2 = -3x-1$$
$$-x-1 \quad -x-1 \qquad\qquad -x+1 \quad -x+1$$
$$1 = 2x \qquad\qquad\qquad 3 = -4x$$
$$\tfrac{1}{2} = x \qquad \text{or} \quad -\tfrac{3}{4} = x$$

CHECK:
$$|\tfrac{1}{2}+2|+1 = 3(\tfrac{1}{2})+2$$
$$|2\tfrac{1}{2}|+1 = \tfrac{3}{2}+2$$
$$2\tfrac{1}{2}+1 = 3\tfrac{1}{2}$$
$$3\tfrac{1}{2} = 3\tfrac{1}{2} \checkmark$$

CHECK
$$|-\tfrac{3}{4}+2|+1 = 3(-\tfrac{3}{7})+2$$
$$|1\tfrac{1}{4}|+1 = -\tfrac{3}{7}+2$$
$$1\tfrac{1}{4}+1 = -\tfrac{1}{4}$$
$$2\tfrac{1}{4} = -\tfrac{1}{4} \text{ NO}$$

Solution: $\{\tfrac{1}{2}\}$

5 Graph the solution to $y-x \le 2$ and $x-y < 1$

$$+x+x$$
$$y \le x+2$$

$$-x \quad -x$$
$$\frac{-y}{-1} < \frac{-x+1}{-1-1}$$
$$y > x-1$$

FLIP!

OVER ☺

6. Rearrange these quadratic equations into standard form and label a, b, c.

$$3(x-4)=6x^2+2$$

$$3x-12 = 6x^2+2$$
$$-3x+12 \qquad -3x+12$$
$$0 = 6x^2-3x+14$$

$$\boxed{6x^2-3x+14=0}$$

a=$\underline{6}$ b=$\underline{-3}$ c=$\underline{14}$

7.

$$\frac{7}{3}, \frac{38}{15}, \frac{41}{15}, \cdots \rightarrow \frac{35}{15}, \frac{38}{15}, \frac{41}{15}$$

a) Write an explicit formula to describe the above sequence.

*adding $\frac{3}{15} = \frac{1}{5}$

$$a_n = \frac{7}{3}+(n-1)\left(\frac{1}{5}\right)$$

or

$$a_n = \frac{7}{3}+\frac{1}{5}n-\frac{1}{5}$$
$$a_n = \frac{1}{5}n+\frac{32}{15}$$

b) Write a recursive formula to describe the above sequence.

$$a_n = a_{n-1}+\frac{1}{5}; a_1 = \frac{7}{3}$$

8. Write the equation of the line in STANDARD FORM

Slope: $-\frac{2}{3}$, point (-4,7)

$$y-7 = -\frac{2}{3}(x+4)$$

$$\left(y-7 = -\frac{2}{3}x-\frac{8}{3}\right)3$$

$$3y-21 = -2x-8$$
$$+2x \quad +21 \qquad +2x \quad +21$$

$$\boxed{2x+3y=13}$$

9. Solve the system. Label solution as consistent, inconsistent, dependent and/or independent. (use all that apply).

$$\begin{cases} x-y=2 \\ -1(x+2y=-6) \end{cases}$$

$$x-y = 2$$
$$-x-2y = 6$$
$$\overline{\qquad\qquad}$$
$$-3y = 8$$

$$x-(-8/3)=2 \quad y=-8/3$$
$$x+8/3 = 2$$
$$-8/3 \quad -8/3$$

$$x = -2/3$$

Solution : $\left(-2/3, -8/3\right)$

Description:
consistent, independent