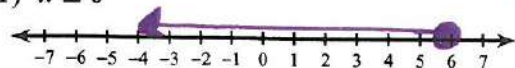
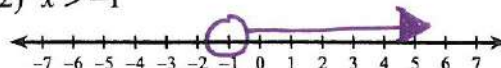


Graph linear inequalities on a number line.

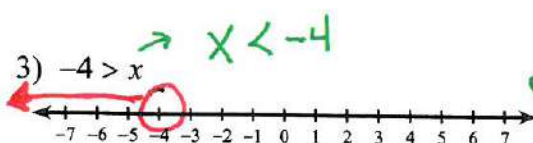
1) $x \leq 6$



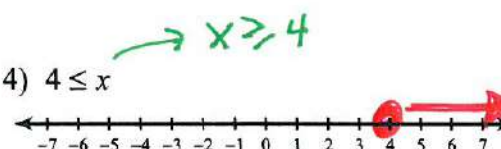
2) $x > -1$



3) $-4 > x$



4) $4 \leq x$



① Rewrite INEQUALITIES:

<u>VARIABLE</u>	<u>SYMBOL</u>	<u>NUMBER</u>
-----------------	---------------	---------------

② NOTE: When the variable is in the above form; THEN the INEQUALITY SYMBOL AND arrow on the number line Go in the same direction.

Solve linear inequalities involving two-steps. Clearly show EACH STEP. Circle your answer. Then graph the solution.

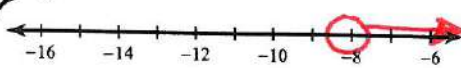
1) $5n - 4 < 6$



$$\begin{array}{r} 5n - 4 < 6 \\ +4 \quad +4 \\ \hline 5n < 10 \\ \div 5 \quad \div 5 \\ \hline n < 2 \end{array}$$

$$\boxed{n < 2}$$

3) $\frac{x}{8} - 1 \geq -2$



$$\begin{array}{r} \frac{x}{8} - 1 \geq -2 \\ +1 \quad +1 \\ \hline \frac{x}{8} \geq -1 \end{array}$$

$$\begin{array}{r} 8 \left(\frac{x}{8} \right) \geq (-1) \cdot 8 \\ \hline x \geq -8 \end{array}$$

$$\boxed{x \geq -8}$$

Do NOT
switch
symbol.



2) $-4n - 1 \geq -25$



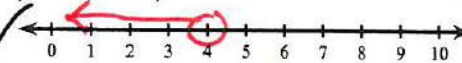
$$\begin{array}{r} -4n - 1 \geq -25 \\ +1 \quad +1 \\ \hline -4n \geq -24 \\ \div -4 \quad \div -4 \\ \hline n \leq 6 \end{array}$$

$$\boxed{n \leq 6}$$



When you mult or divide the variable by a negative number, THEN switch the direction of the symbol

4) $-3(n+4) > -24$



$$\begin{array}{r} -3(n+4) > -24 \\ -3n - 12 > -24 \\ +12 \quad +12 \\ \hline -3n > -12 \\ \div -3 \quad \div -3 \\ \hline n < 4 \end{array}$$

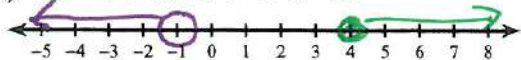
$$\boxed{n < 4}$$

You must
switch
symbol!



Solve compound inequalities. Clearly show EACH STEP. Circle your answer. Then graph the solution.

1) $6x - 6 \geq 18$ or $3 + 2x < 1$

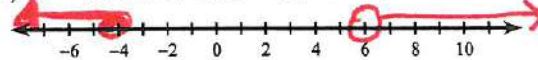


$$\begin{array}{rcl} 6x - 6 & \geq & 18 \\ +6 & +6 & \\ \hline 6x & \geq & 24 \\ \frac{6}{6} & & \frac{24}{6} \\ \hline x & \geq & 4 \end{array} \quad \text{or} \quad \begin{array}{rcl} 3 + 2x & < & 1 \\ -3 & & -3 \\ \hline 2x & < & -2 \\ \frac{2}{2} & & \frac{-2}{2} \\ \hline x & < & -1 \end{array}$$

$$x \geq 4 \text{ OR } x < -1$$



2) $3 - 6x \geq 27$ or $1 - 5x < -29$

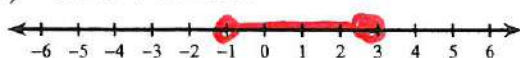


$$\begin{array}{rcl} 3 - 6x & \geq & 27 \\ -3 & & -3 \\ \hline -6x & \geq & 24 \\ \frac{-6}{-6} & & \frac{24}{-6} \\ \hline x & \leq & -4 \end{array} \quad \text{or} \quad \begin{array}{rcl} 1 - 5x & < & -29 \\ +1 & & +1 \\ \hline -5x & < & -30 \\ \frac{-5}{-5} & & \frac{-30}{-5} \\ \hline x & < & 6 \end{array}$$

$$x \leq -4 \text{ OR } x > 6$$



3) $-3 \leq 1 + 4x \leq 13$

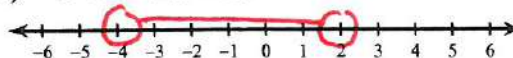


$$\begin{array}{rcl} -3 & \leq & 1 + 4x \leq 13 \\ -1 & +1 & -1 \\ \hline -4 & \leq & 4x \leq 12 \\ \frac{-4}{4} & & \frac{12}{4} \\ \hline -1 & \leq & x \leq 3 \end{array}$$

$$-1 \leq x \leq 3$$



4) $-2 < 2 - 2n < 10$



$$\begin{array}{rcl} -2 & < & 2 - 2n < 10 \\ -2 & +2 & -2 \\ \hline -4 & < & -2n < 8 \\ \frac{-4}{-2} & & \frac{8}{-2} \\ \hline 2 & > & n > -4 \end{array}$$

$$2 > n > -4$$

rewrite

$$-4 < n < 2$$



ALG.c

Rewrite

Date _____ Period _____

ALG.c.4

- (a) $|x| > n \rightarrow \text{"OR"}$
 (b) $|x| < n \rightarrow \text{"and"}$

Solve the inequalities. Clearly show EACH STEP. Circle your answer. Then graph the solution.

1) $|6 + 4v| > 14$

OR

$$\begin{array}{l}
 6 + 4v < -14 \quad \text{OR} \quad 6 + 4v > 14 \\
 \hline
 4v < -20 \quad \text{OR} \quad 4v > 8 \\
 \hline
 v < -5 \quad \text{OR} \quad v > 2
 \end{array}$$

$v < -5$ OR $v > 2$

2) $|6p + 3| \geq 27$

OR

$$\begin{array}{l}
 6p + 3 \leq -27 \quad \text{OR} \quad 6p + 3 \geq 27 \\
 \hline
 6p \leq -30 \quad \text{OR} \quad 6p \geq 24 \\
 \hline
 p \leq -5 \quad \text{OR} \quad p \geq 4
 \end{array}$$

$p \leq -5$ OR $p \geq 4$

3) $|3x - 6| \leq 24$

and

$$\begin{array}{l}
 -24 \leq 3x - 6 \leq 24 \\
 \hline
 -18 \leq 3x \leq 30 \\
 \hline
 -6 \leq x \leq 10
 \end{array}$$

$-6 \leq x \leq 10$

4) $|-2x - 1| < 11$

and

$$\begin{array}{l}
 -11 < -2x - 1 < 11 \\
 \hline
 -10 < -2x < 12 \\
 \hline
 5 > x > -6 \\
 \text{rewrite} \rightarrow & -6 < x < 5
 \end{array}$$

$-6 < x < 5$