Multi-Step Inequalities

Solve and graph the solution set for the following problems.

1: $9x+4 \le 3x-14$

$-3x \quad -3x$

$6x+4 \le -14$

$-4 \quad -4$

$\frac{6x}{6} \le \frac{-18}{6}$

$x \le -3$

$(-\infty, -3]$

2: $-2(x-4)-3x<23$

$-2x+8-3x<23$

$-5x+8<23$

$-8 \quad -8$

$\frac{-5x}{-5} < \frac{15}{-5}$

$x > -3$

$(-3, \infty)$

Practice: Solve and graph the solution set for the following problems

1. $5x+3<2x+15$

2. $2(3+3g)>2g+14$

Solve the following problems

3. $2(3b-2)<4b+8$

4. $11y-2\leq 3y+14$

5. $3q+6\leq -5(q+2)$

6. $1<8+b$

7. $-4x-4<8$

8. $5-9c>-13$

9. A high school class is planning its annual hayride. There is a flat fee of $50 plus $30 per hour to hire the hay wagon. The class has a budget of $280 for the hayride.

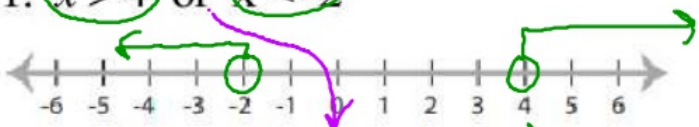
Part A: Write an inequality to find *h*, the number of hours they can hire the hay wagon and stay within budget.

$50+30h\leq 280$

Part B: Solve the inequality.

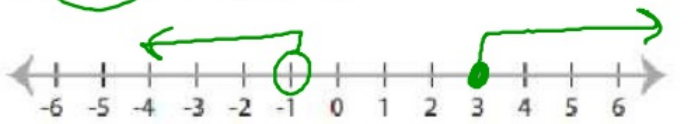
Solving and Graphing Compound Inequalities	Graph the following compound inequalities and then write the solution in interval notation

1. $x > 4$ or $x < -2$



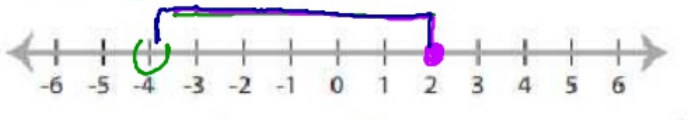
$(-\infty, -2) \cup (4, \infty)$

2. $x \geq 3$ or $x \leq -1$



$(-\infty, -1] \cup [3, \infty)$

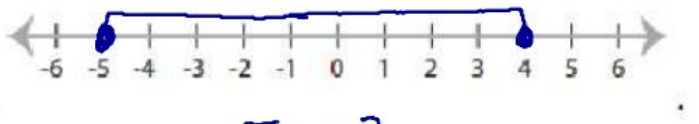
3. $x > -4$ and $x \leq 2$



$(-4, 2]$

$x \geq -5 \cap x \leq 4$

4. $-5 \leq x \leq 4$ $\quad x \geq -5$ and $x \leq 4$



$[-5, 4]$