## Solving Compound Inequalities - 1 variable

## Procedure:

1. Determine if the compound inequality is connected by "and" or "or".
2. Solve each inequality
3. If compound inequality is connected by an "and", then the solution must satisfy each statement. The solution is where the graphs of each overlap.
3a. If the compound inequality is connected by an "or" statement, then the solution can satisfy either or both statements. The solution is the graph of both solutions.

Example $\quad$ Solve for $\mathrm{x} ; \quad-11<2 \mathrm{x}+1<7$

1. It's written as a double inequality, therefore it's an "and" statement.
2. Solve $-11<2 x+1$ and $2 x+1<7$

$$
-12<2 x \quad 2 x<6
$$

$$
-6<x \quad x<3
$$

3. Numbers greater than -6 and less than 3 , written as

$$
-6<x<3
$$

## Solve for x .

1. $12<2 \mathrm{x} \leq 16$
2. $x<5$ and $2 x>3$
3. $\mathrm{x}+1<3$ or $2 \mathrm{x}-1 \geq 7$
4. $3 \mathrm{x}+2>20$ or $2 \mathrm{x}+5<-3$
5. $-3 \leq 2 x+1<9$
6. $2 x-5>1$ and $3 x+2 \geq 14$
7. $2 \mathrm{x}-5>1$ or $3 \mathrm{x}+2 \geq 14$
8. $-10 \leq 2 \mathrm{x}+3 \leq 5$
9. $0<3 x+2<14$
10. $x>5$ and $x<1$
