Chapter 4 Section 1
Solving Linear Inequalities

Linear Equation in x can be expressed as $ax + b = 0$.
Linear inequality in x can be written in one of the following forms:

a) $ax + b < 0$
b) $ax + b \leq 0$
c) $ax + b > 0$
d) $ax + b \geq 0$

In each case $a \neq 0$.

Solve linear inequalities similar to solving equations but if you multiply or divide an inequality by a negative value, point the inequality symbol the other way.

Take $5 > 7$
Add 2
Subtract 2
Multiply by 2
Divide by 2

Now,
Add -2
Subtract -2
Multiply by -2
Divide by -2

Try:
Solve the inequality. Graph the solution set on the number line.

a) $3x - 5 > -17$ b) $-2x - 4 \geq x + 5$ c) $3x + 1 \geq 7x - 15$ d) $\frac{x+3}{4} \geq \frac{x-2}{3} + \frac{1}{4}$

Inequalities with Unusual Solution Sets

a) $2(x + 4) \geq 2x + 3$ b) $x + 7 < x - 2$