

## II-5 Reading Strategies Solving Multi-Step Inequalities

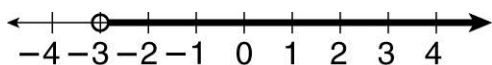
You can use these steps to help you solve a two-step inequality.

Solve  $-8 < 4x + 4$ .

**Step 1:** Get the variable by itself on one side of the inequality.  $-8 \quad -4 < 4x + 4 - 4$  Subtract 4 from both sides.  
 $\downarrow \quad \downarrow$   
 $-12 < 4x$

**Step 2:** Solve.  $-\frac{12}{4} < \frac{4x}{4}$  Divide both sides by 4.  
 $\downarrow \quad \downarrow$   
 $-3 < x$

**Step 3:** Rewrite the solution so the variable comes first.  $x > -3$



**Use the procedure to answer each question.**

1. What did the procedure tell you to do first?  
 \_\_\_\_\_
2. How did you get the variable by itself in this problem?  
 \_\_\_\_\_
3. What is the second step given?  
 \_\_\_\_\_
4. How did you solve this inequality?  
 \_\_\_\_\_
5. How would the graph for  $x \geq -3$  be different than the above graph?  
 \_\_\_\_\_

## II-5 Practice A

### Solving Multi-Step Inequalities

Write **yes** or **no** to tell whether the inequality symbol would be reversed in the solution. Do not solve.

1.  $2x - 4 < 20$

2.  $4 - 3y \leq 21$

3.  $6x + 17 > 3$

4.  $-\frac{a}{5} - 4 \geq -2$

Solve.

5.  $2x - 17 \geq 29$

6.  $8 - \frac{k}{2} < -12$

7.  $23 - 3w < -34$

8.  $24 - 0.6x < 60$

9.  $10 \leq 10 - 2d - 5$

10.  $\frac{2x}{3} + 5 - \frac{x}{3} \leq 14$

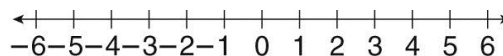
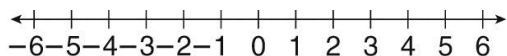
11.  $\frac{2}{3} \geq \frac{y}{6} - \frac{1}{2}$

12.  $\frac{-a}{7} + \frac{1}{7} > \frac{1}{14}$

Solve and graph.

13.  $2x - 1 \square 3$

14.  $16 \geq 1 - 3a$



15. Mrs. Ocosta is paid a 5% commission on her sales each week. In addition, she receives a base salary of \$375. What should the amount of her sales be for the week if she hopes to make at least \$600 this week?