

**3-7 Study Guide****Solving Inequalities by Multiplying or Dividing**Student Edition  
Pages 151-155

When you multiply or divide each side of an inequality by a *positive* number, you get a new inequality with the same solutions.

$$\begin{aligned} 3h &< -12 \\ 3h \div 3 &< -12 \div 3 \\ h &< -4 \end{aligned}$$

$$\begin{aligned} \frac{h}{5} &> 10 \\ \frac{h}{5} \cdot 5 &> 10 \cdot 5 \\ h &> 50 \end{aligned}$$

When you multiply or divide each side by a *negative* number, you must reverse the inequality symbol. Otherwise, the new inequality will not have the same solutions.

$$\begin{aligned} -3h &< -12 \\ -3h \div (-3) &> -12 \div (-3) \\ h &> 4 \end{aligned}$$

$$\begin{aligned} \frac{h}{-5} &> 10 \\ \frac{h}{-5} \cdot (-5) &< 10 \cdot (-5) \\ h &< -50 \end{aligned}$$

Do the two inequalities have the same solutions? Write yes or no.

1.  $2x < 14$   
 $x > 7$

2.  $-x < 0$   
 $x > 0$

3.  $3x < 9$   
 $x < 3$

4.  $-5x > 0$   
 $x > 0$

5.  $-4x < 4$   
 $x > -1$

6.  $-3x > -3$   
 $x > 1$

Solve each inequality and check your solution.

7.  $7x < 84$

8.  $9x > 81$

9.  $\frac{h}{3} < -10$

10.  $6p < 12$

11.  $\frac{h}{4} > -7$

12.  $0 > -5c$

13.  $-2d > 4$

14.  $-2d > -4$

15.  $-2d < -4$

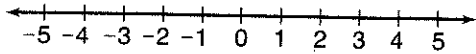
16.  $\frac{a}{-3} < 9$

17.  $\frac{a}{-3} > -9$

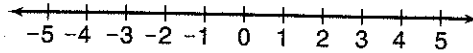
18.  $\frac{a}{3} < -9$

**3-7 Practice****Solving Inequalities by Multiplying or Dividing***Solve each inequality and check your solution. Then graph the solution on a number line.*

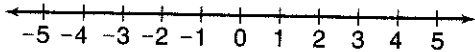
1.  $-5x < -25$



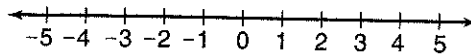
2.  $4x \geq -8$



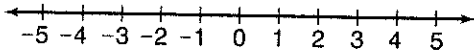
3.  $\frac{b}{2} > 2$



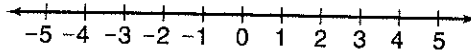
4.  $\frac{x}{18} < \frac{1}{18}$



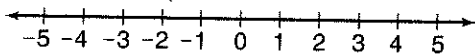
5.  $3x \geq 3$



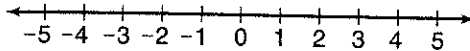
6.  $-2x < -4$



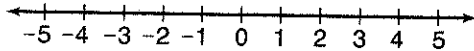
7.  $\frac{c}{3} \leq -1$



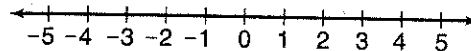
8.  $-6x < 0$



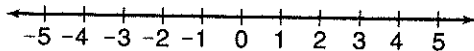
9.  $-4x \geq 16$



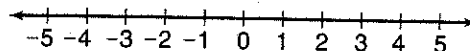
10.  $\frac{w}{-1} \geq -5$



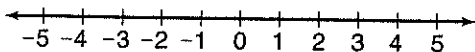
11.  $\frac{1}{-4} < \frac{m}{-4}$



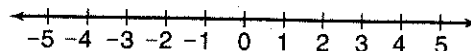
12.  $2 \leq \frac{t}{-1}$



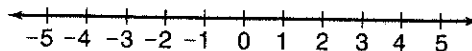
13.  $3x > -6$



14.  $\frac{-1}{8} \leq \frac{n}{-32}$



15.  $\frac{x}{-12} > \frac{1}{4}$



16.  $\frac{-1}{2}x \leq 2$

