NAME _____ DATE _____

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.

$$3h < -12$$
$$3h \div 3 < -12 \div 3$$
$$h < -4$$

$$\frac{h}{5} > 10$$
$$\frac{h}{5} \cdot 5 > 10 \cdot 5$$
$$h > 50$$

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.

$$-3h < -12$$
$$-3h \div (-3) > -12 \div (-3)$$
$$h > 4$$

$$\frac{h}{-5} > 10$$
$$\frac{h}{-5} \cdot (-5) < 10 \cdot (-5)$$
$$h < -50$$

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

NAME _____ DATE _____

3-7 Practice

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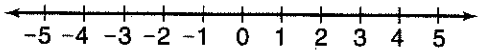
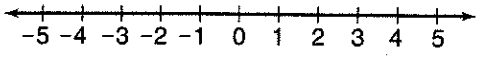
Solve each inequality and check your solution. Then graph the solution on a number line.

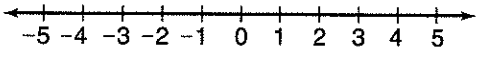
1. $-5x < -25$



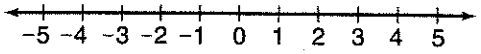
2. $4x \geq -8$



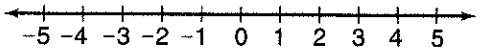
3. $\frac{b}{2} > 2$



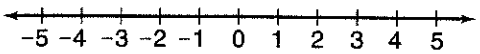
4. $\frac{x}{18} < \frac{1}{18}$



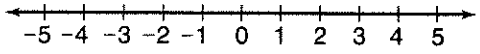
5. $3x \geq 3$



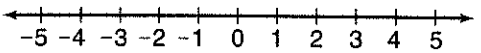
6. $-2x < -4$



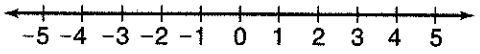
7. $\frac{c}{3} \leq -1$



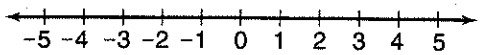
8. $-6x < 0$



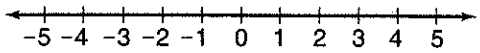
9. $-4x \geq 16$



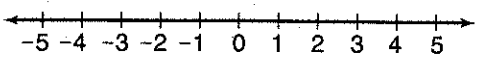
10. $\frac{w}{-1} \geq -5$



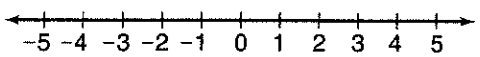
11. $\frac{1}{-4} < \frac{m}{-4}$



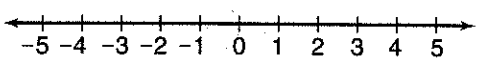
12. $2 \leq \frac{t}{-1}$



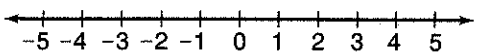
13. $3x > -6$



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



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



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