Name _____ Class _____ Date _____

Reteaching 3-3

Solving Inequalities Using Multiplication and Division

OBJECTIVE: Using multiplication and division to solve one-step inequalities

MATERIALS: Models, an index card or piece of paper with < written on it

Example

Use tiles and the card to compare quantities as shown in these steps.

2 _____ 3

❒❒ $\boxed{<}$ ❒❒❒ ← **Model the quantities with tiles and place your card to show how the quantities compare.**

$-2(2)$ $-2(3)$ ← **Multiply each quantity by −2.**

-4 -6 ← **Write the results.**

■■■■ $\boxed{>}$ ■■■■■■ ← **Model the new quantities and place your card to show how the new quantities compare. Notice that you must rotate the card to make the new statement true.**

What happens to the direction of the inequality symbol when you multiply or divide an inequality by a negative number? The direction of the inequality symbol reverses.

Exercises

Model both lines of each exercise. Use your card to compare the quantities. Then fill in the blanks by writing < or >.

1. 2 _____ 4
$-2(2)$ _____ $-2(4)$

2. -3 _____ -2
$-3(-3)$ _____ $-3(-2)$

3. 4 _____ -3
$\frac{4}{-2}$ _____ $\frac{-3}{-2}$

4. 3 _____ -1
$-1(3)$ _____ $-1(-1)$

5. -2 _____ 2
$\frac{-2}{-4}$ _____ $\frac{2}{-4}$

6. -1 _____ -3
$-3(-1)$ _____ $-3(-3)$

Solve and check.

7. $2.5a < 15$

8. $-3b > 21$

9. $6c < 24$

10. $\frac{x}{7} < -2$

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

12. $8f > 56$

13. $-4.2d \geq 10.5$

14. $-\frac{2}{3}m \leq 10$

15. $-1.7x > -34$

16. $\frac{n}{8} \leq -2.5$

17. $-1.5k < 2.4$

18. $\frac{3}{5}p \geq -9$

19. $4t > -14$

20. $\frac{z}{15} > -\frac{2}{3}$

21. $-\frac{1}{2}w \leq -3.6$

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