Name _____ Class _____ Date _____

3-4 Practice

Form K

Solving Multi-Step Inequalities

Solve each inequality. Check your solutions. The first step is started for you.

1. $3m + 12 < 24$

$3m + 12 \boxed{-} 12 < 24 \boxed{-} 12$

$3m < 12$

$m < 4$

2. $4w - 3 \geq 33$

$4w - 3 \boxed{+} 3 \geq 33 \boxed{+} 3$

$4w \geq 36$

$w \geq 9$

3. $-2 + 2p \leq -14$

$-2 \boxed{+} 2 + 2p \leq -14 \boxed{+} 2$

$2p \leq -12$

$p \leq -6$

4. $12 > 60 - 6t$

$12 \boxed{-} 60 > 60 \boxed{-} 60 - 6t$

$-48 > -6t$

$8 < t$

Solve each inequality.

5. $4(k + 2) - 3k \leq 12$ $k \leq 4$

6. $3(2c - 2) - 2c > 0$ $c > \frac{3}{2}$

7. $12(j + 1) + 3j < 57$ $j < 3$

8. $22 \geq 5(y - 2) - 3y$ $16 \geq y$

Name _____ Class _____ Date _____

3-4 Practice (continued) Form K

Solving Multi-Step Inequalities

Solve each inequality, if possible. If the inequality has no solution, write *no solution*. If the solutions are all real numbers, write *all real numbers*.

9. $8w - 5 > 2(4w - 3)$ **all real numbers**

10. $-3r + 15 \geq 4(r - 2)$ $\frac{23}{7} \geq r$

11. A grandmother devises an inequality to help her remember the ages of her two grandchildren. She knows her grandson is two years older than her granddaughter and that together, they are at least 12 years old. What are the youngest that her grandson and granddaughter could be?

Let a be the age of the granddaughter. Let $a +$ [2] be the age of the grandson.
The granddaughter is at least 5 years old. The grandson is at least 7 years old.

12. A family decides to rent a boat for the day. The boat's rental rate is \$500 for the first two hours and \$50 for each additional half hour. Suppose the family budgeted \$700 to rent the boat. What is the maximum number of additional half hours for which they can rent the boat? **4**

Let $t =$ the additional time in half hours.

[50] $t +$ \$500 [≤] \$700

$50t \leq 200$
$t \leq 4$

13. Suppose a friend is having difficulty solving $-2(q - 5) > -3(q + 1)$. Explain how to solve the inequality, showing all the necessary steps and identifying the properties you would use.

$-2q + 10 > -3q - 3$ Dist. Prop.
$q + 10 > -3$ Add. Prop. of Inequality
$q > -13$ Add. Prop. of Inequality