NAME _____ DATE _____ PERIOD _____

6-3 Skills Practice

Solving Multi-Step Inequalities

Justify each indicated step.

1.
$$\frac{3}{4}t - 3 \geq -15$$
$$\frac{3}{4}t - 3 + 3 \geq -15 + 3 \quad \textbf{a.}\ \_?\_$$
$$\frac{3}{4}t \geq -12$$
$$\frac{4}{3}\left(\frac{3}{4}\right)t \geq \frac{4}{3}(-12) \quad \textbf{b.}\ \_?\_$$
$$t \geq -16$$

2.
$$5(k + 8) - 7 \leq 23$$
$$5k + 40 - 7 \leq 23 \quad \textbf{a.}\ \_?\_$$
$$5k + 33 \leq 23$$
$$5k + 33 - 33 \leq 23 - 33 \quad \textbf{b.}\ \_?\_$$
$$5k \leq -10$$
$$\frac{5k}{5} \leq \frac{-10}{5} \quad \textbf{c.}\ \_?\_$$
$$k \leq -2$$

Solve each inequality. Then check your solution.

3. $-2b + 4 > -6$

4. $3x + 15 \leq 21$

5. $\frac{d}{2} - 1 \geq 3$

6. $\frac{2}{5}a - 4 < 2$

7. $-\frac{t}{5} + 7 > -4$

8. $\frac{3}{4}j - 10 \geq 5$

9. $-\frac{2}{3}f + 3 < -9$

10. $2p + 5 \geq 3p - 10$

11. $4k + 15 > -2k + 3$

12. $2(-3m - 5) \geq -28$

13. $-6(w + 1) < 2(w + 5)$

14. $2(q - 3) + 6 \leq -10$

Define a variable, write an inequality, and solve each problem. Then check your solution.

15. Four more than the quotient of a number and three is at least nine.

16. The sum of a number and fourteen is less than or equal to three times the number.

17. Negative three times a number increased by seven is less than negative eleven.

18. Five times a number decreased by eight is at most ten more than twice the number.

19. Seven more than five sixths of a number is more than negative three.

20. Four times the sum of a number and two increased by three is at least twenty-seven.

Lesson 6-3