

## 5-3 Skills Practice

### Solving Multi-Step Inequalities

Justify each indicated step.

1.  $\frac{3}{4}t - 3 \geq -15$

$$\frac{3}{4}t - 3 + 3 \geq -15 + 3$$

$$\frac{3}{4}t \geq -12$$

$$\frac{4}{3} \left( \frac{3}{4} \right) t \geq \frac{4}{3}(-12)$$

$$t \geq -16$$

a. ?

b. ?

2.  $5(k + 8) - 7 \leq 23$

$$5k + 40 - 7 \leq 23$$

$$5k + 33 \leq 23$$

$$5k + 33 - 33 \leq 23 - 33$$

$$5k \leq -10$$

$$\frac{5k}{5} \leq \frac{-10}{5}$$

$$k \leq -2$$

a. ?

b. ?

c. ?

Solve each inequality. 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. 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.