1-5 Practice

Form G

Solving Inequalities

Write the inequality that represents the sentence.

1. Four less than a number is greater than −28.

2. Twice a number is at least 15.

3. A number increased by 7 is less than 5.

4. The quotient of a number and 8 is at most −6.

Solve each inequality. Graph the solution.

5. $3(x + 1) + 2 < 11$

6. $5t - 2(t + 2) \geq 8$

7. $2[(2y - 1) + y] \leq 5(y + 3)$

8. $\frac{1}{3}(7a - 1) \leq 2a + 7$

9. $5 - 2(n + 2) \leq 4 + n$

10. $-2(w - 7) + 3 > w - 1$

Solve each problem by writing an inequality.

11. Geometry The length of a rectangular yard is 30 meters. The perimeter is at most 90 meters. Describe the width of the yard.

12. Geometry A piece of rope 20 feet long is cut from a longer piece that is at least 32 feet long. The remainder is cut into four pieces of equal length. Describe the length of each of the four pieces.

13. A school principal estimates that no more than 6% of this year's senior class will graduate with honors. If 350 students graduate this year, how many will graduate with honors?

14. Two sisters drove 144 miles on a camping trip. They averaged at least 32 miles per gallon on the trip. Describe the number of gallons of gas they used.

1-5 **Practice** (continued) *Form G*

Solving Inequalities

Is the inequality *always, sometimes,* or *never* true?

15. $3(2x + 1) > 5x - (2 - x)$

16. $2(x - 1) \geq x + 7$

17. $7x + 2 \leq 2(2x - 4) + 3x$

18. $5(x - 3) < 2(x - 9)$

Solve each compound inequality. Graph the solution.

19. $3x > -6$ and $2x < 6$

20. $4x \geq -12$ and $7x \leq 7$

21. $5x > -20$ and $8x \leq 32$

22. $6x < -12$ or $5x > 5$

23. $6x \leq -18$ or $2x > 18$

24. $2x > 3 - x$ or $2x < x - 3$

Solve each problem by writing and solving a compound inequality.

25. A student believes she can earn between $5200 and $6250 from her summer job. She knows that she will have to buy four new tires for her car at $90 each. She estimates her other expenses while she is working at $660. How much can the student save from her summer wages?

26. Before a chemist can combine a solution with other liquids in a laboratory, the temperature of the solution must be between 39°C and 52°C. The chemist places the solution in a warmer that raises the temperature 6.5°C per hour. If the temperature is originally 0°C, how long will it take to raise the temperature to the necessary range of values?

27. The Science Club advisor expects that between 42 and 49 students will attend the next Science Club field trip. The school allows $5.50 per student for sandwiches and drinks. What is the advisor's budget for food for the trip?