




6.3 EXERCISES

HOMEWORK KEY

-  = **WORKED-OUT SOLUTIONS**
on p. WS1 for Exs. 5, 19, and 39
-  = **TAKS PRACTICE AND REASONING**
Exs. 33, 39, 40, 42, 44, and 45
-  = **MULTIPLE REPRESENTATIONS**
Ex. 41

SKILL PRACTICE

1. **VOCABULARY** Copy and complete: The inequalities $3x - 1 < 11$, $3x < 12$, and $x < 4$ are called ? .
2. **WRITING** How do you know whether an inequality has no solutions? How do you know whether the solutions are all real numbers?

EXAMPLES 1, 2, and 3

on pp. 369–370
for Exs. 3–16

SOLVING INEQUALITIES Solve the inequality. Graph your solution.

- | | | |
|------------------------------------|--|-----------------------------------|
| 3. $2x - 3 > 7$ | 4. $5y + 9 \leq 4$ | 5. $8v - 3 \geq -11$ |
| 6. $3(w + 12) < 0$ | 7. $7(r - 3) \geq -13$ | 8. $2(s + 4) \leq 16$ |
| 9. $4 - 2m > 7 - 3m$ | 10. $8n - 2 > 17n + 9$ | 11. $-10p > 6p - 8$ |
| 12. $4 - \frac{1}{2}q \leq 33 - q$ | 13. $-\frac{2}{3}d - 2 < \frac{1}{3}d + 8$ | 14. $8 - \frac{4}{5}f > -14 - 2f$ |

ERROR ANALYSIS Describe and correct the error in solving the inequality.

15.

$$\begin{aligned} 17 - 3x &\geq 56 \\ -3x &\geq 39 \\ x &\geq -13 \end{aligned}$$



16.

$$\begin{aligned} -4(2x - 3) &< 28 \\ -8x - 12 &< 28 \\ -8x &< 40 \\ x &> -5 \end{aligned}$$




EXAMPLE 4

on p. 370
for Exs. 17–28

SOLVING INEQUALITIES Solve the inequality, if possible.

- | | | |
|--------------------------------------|---|--|
| 17. $3p - 5 > 2p + p - 7$ | 18. $5d - 8d - 4 \leq -4 + 3d$ | 19. $3(s - 4) \geq 2(s - 6)$ |
| 20. $2(t - 3) > 2t - 8$ | 21. $5(b + 9) \leq 5b + 45$ | 22. $2(4c - 7) \geq 8(c - 3)$ |
| 23. $6(x + 3) < 5x + 18 + x$ | 24. $4 + 9y - 3 \geq 3(3y + 2)$ | 25. $2.2h + 0.4 \leq 2(1.1h - 0.1)$ |
| 26. $9.5j - 6 + 5.5j \geq 3(5j - 2)$ | 27. $\frac{1}{5}(4m + 10) < \frac{4}{5}m + 2$ | 28. $\frac{3}{4}(8n - 4) < -3(1 - 2n)$ |

TRANSLATING PHRASES Translate the verbal phrase into an inequality. Then solve the inequality and graph your solution.

29. Four more than the product of 3 and x is less than 40.
30. Twice the sum of x and 8 is greater than or equal to -36 .
31. The sum of $5x$ and $2x$ is greater than the difference of $9x$ and 4.
32. The product of 6 and the difference of $6x$ and 3 is less than or equal to the product of -2 and the sum of 4 and $8x$.
33.  **TAKS REASONING** For which values of a and b are all the solutions of $ax + b > 0$ positive?

- (A) $a > 0, b > 0$ (B) $a < 0, b < 0$ (C) $a > 0, b < 0$ (D) $a < 0, b = 0$