

8 Chapter Review



Review Key Vocabulary

inequality, p. 330
solution of an inequality, p. 331

solution set, p. 331
graph of an inequality, p. 332

Review Examples and Exercises

8.1 Writing and Graphing Inequalities (pp. 328–335)

Write the word sentence as an inequality.

- a. A number x is more than 9.

A number x is more than 9.
 $x > 9$

••• An inequality is $x > 9$.

- b. A number r divided by 2 is at most 4.

A number r divided by 2 is at most 4.
 $\frac{r}{2} \leq 4$

••• An inequality is $\frac{r}{2} \leq 4$.

Exercises

Write the word sentence as an inequality.

1. A number m is less than 5.
2. A number h is at least 12.
3. A number k plus 7 is no more than 19.
4. Three times a number b is greater than 6.

Tell whether the given value is a solution of the inequality.

5. $x + 3 \leq 4$; $x = 1$
6. $n - 8 > 3$; $n = 10$
7. $6k < 36$; $k = 6$
8. $\frac{t}{3} \geq 5$; $t = 18$

Graph the inequality on a number line.

9. $x < 0$
10. $a \geq 3$
11. $n \leq -1$

8.2 Solving Inequalities Using Addition or Subtraction (pp. 336–341)

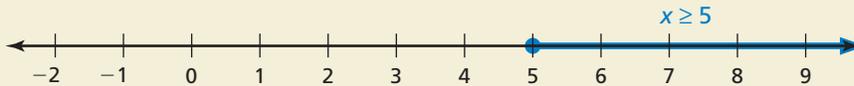
Solve $1 \leq x - 4$. Graph the solution.

Undo the subtraction.

$$\begin{array}{ll} 1 \leq x - 4 & \text{Write the inequality.} \\ \xrightarrow{+4} \quad \xrightarrow{+4} & \text{Add 4 to each side.} \\ 5 \leq x & \text{Simplify.} \end{array}$$

The inequality $5 \leq x$ is the same as $x \geq 5$.

∴ The solution is $x \geq 5$.



Exercises

Solve the inequality. Graph the solution.

12. $x + 1 > 3$

13. $k - 7 \leq 0$

14. $y + 8 \geq 9$

15. $24 < 11 + x$

16. $4 \leq n - 4$

17. $x - 20 > 24$

18. $b + 12 \leq 26$

19. $s - 1.5 < 2.5$

20. $\frac{1}{4} + m \leq \frac{1}{2}$

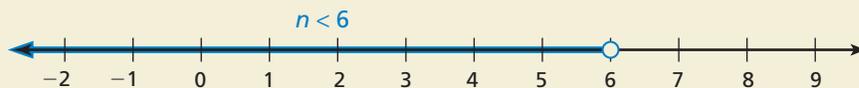
8.3 Solving Inequalities Using Multiplication or Division (pp. 344–349)

Solve $7n < 42$. Graph the solution.

Undo the multiplication.

$$\begin{array}{ll} 7n < 42 & \text{Write the inequality.} \\ \xrightarrow{\div 7} \quad \xrightarrow{\div 7} & \text{Divide each side by 7.} \\ n < 6 & \text{Simplify.} \end{array}$$

∴ The solution is $n < 6$.



Exercises

Solve the inequality. Graph the solution.

21. $x \div 2 < 4$

22. $9n \geq 63$

23. $\frac{x}{5} > 10$

24. $9 \geq 3b$

25. $10p > 40$

26. $\frac{k}{4} \geq 15$

8.4 Solving Two-Step Inequalities (pp. 350–355)

a. Solve $\frac{y}{3} + 1 > 6$. Graph the solution.

$$\frac{y}{3} + 1 > 6 \quad \text{Write the inequality.}$$

Undo the addition.

$$\frac{y}{3} - 1 > 6 - 1 \quad \text{Subtract 1 from each side.}$$

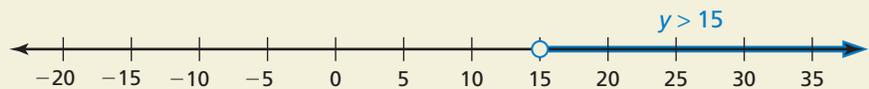
$$\frac{y}{3} > 5 \quad \text{Simplify.}$$

Undo the division.

$$\frac{y}{3} \cdot 3 > 5 \cdot 3 \quad \text{Multiply each side by 3.}$$

$$y > 15 \quad \text{Simplify.}$$

∴ The solution is $y > 15$.



b. Solve $10 \geq 3w - 5$. Graph the solution.

$$10 \geq 3w - 5 \quad \text{Write the inequality.}$$

Undo the subtraction.

$$10 + 5 \geq 3w - 5 + 5 \quad \text{Add 5 to each side.}$$

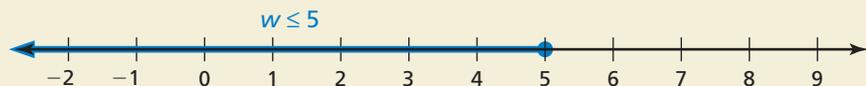
$$15 \geq 3w \quad \text{Simplify.}$$

Undo the multiplication.

$$\frac{15}{3} \geq \frac{3w}{3} \quad \text{Divide each side by 3.}$$

$$5 \geq w \quad \text{Simplify.}$$

∴ The solution is $w \leq 5$.



Exercises

Solve the inequality. Graph the solution.

27. $4x + 1 < 5$

28. $\frac{n}{2} - 3 \leq 9$

29. $6w - 4 \geq 8$

30. $18 > \frac{t}{5} + 11$

31. $3c - 4 \geq 14$

32. $\frac{p}{4} + 1 > 1$

33. $25 \geq 7s + 4$

34. $\frac{x}{9} - 0.7 < 1.3$

35. $\frac{d}{6} - 1.4 > 0.1$