

Lesson 3-7

Example 1

Solve and graph $b + 3 \geq 9$.

Solution

$$\begin{aligned} b + 3 &\geq 9 \\ b + 3 + (-3) &\geq 9 + (-3) \\ b &\geq 6 \end{aligned}$$

Graph the solution. Use a closed circle to show that 6 is a solution.



Example 2

Solve and graph each inequality.

a. $2x \leq 8$

b. $-\frac{1}{3}n < 2$

Solution

a.
$$\begin{aligned} 2x &\leq 8 \\ \frac{2x}{2} &\leq \frac{8}{2} \\ x &\leq 4 \end{aligned}$$

b.
$$-\frac{1}{3}n < 2$$

$$\begin{aligned} -3 \cdot \frac{1}{3}n &> -3(2) && \text{Multiply each side by } -3 \\ n &> -6 && \text{and reverse the inequality.} \end{aligned}$$

Graph each solution.



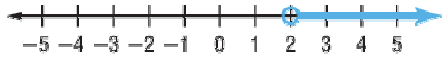
Example 3

Solve and graph $-4x - 1 < -9$.

Solution

$$\begin{array}{ll}
 -4x - 1 < -9 & \\
 -4x - 1 + 1 < -9 + 1 & \text{Add 1 to each side.} \\
 -4x < -8 & \\
 \frac{-4x}{-4} > \frac{-8}{-4} & \text{Divide each side by -4 and reverse the inequality.} \\
 x > 2 &
 \end{array}$$

Graph the solution.

**Example 4**

EDUCATION Natalie wants to read at least 125 pages of her history book this week. On Monday, she read 14 pages. What is the least number of pages she must average daily for the next 6 days to reach her goal?

Solution

Write and solve an inequality that represents the situation. Let p = the number of pages that Natalie reads each day. Let $6p$ = the number of pages read for the next 6 days.

$$\begin{array}{l}
 6p + 14 \geq 125 \\
 6p + 14 - 14 \geq 125 - 14 \\
 6p \geq 111 \\
 \frac{6p}{6} \geq \frac{111}{6} \\
 p \geq 18.5
 \end{array}$$

Natalie must read on average at least 18.5 pages each day for the next 6 days.