

Exercise 23

For the following exercises, solve the equations below and express the answer using set notation.

$$\left| \frac{1}{3}x + 5 \right| = 14$$

Solution

Remove the absolute value sign by placing \pm (read as “plus or minus”) on the right side.

$$\frac{1}{3}x + 5 = \pm 14$$

$$\frac{1}{3}x + 5 = 14 \quad \text{or} \quad \frac{1}{3}x + 5 = -14$$

$$\frac{1}{3}x = 9 \quad \text{or} \quad \frac{1}{3}x = -19$$

$$x = 27 \quad \text{or} \quad x = -57$$

Therefore,

$$x = \{-57, 27\}.$$