

2.2 Solving Simple Equations

Solutions

Solve each equation and check your solutions.	
<p>1. $x + 9 = 5$</p> $\begin{array}{r} x + 9 = 5 \\ -9 \quad -9 \\ \hline x = -4 \end{array}$ <p style="text-align: center;">{-4}</p>	<p>Check:</p> $\begin{array}{l} x + 9 = 5 \\ -4 + 9 = 5 \text{ ?} \\ 5 = 5 \text{ Yes} \end{array}$
<p>3. $x - 3 = 16$</p> $\begin{array}{r} x - 3 = 16 \\ +3 \quad +3 \\ \hline x = 19 \end{array}$ <p style="text-align: center;">{19}</p>	<p>Check:</p> $\begin{array}{l} x - 3 = 16 \\ 19 - 3 = 16 \text{ ?} \\ 16 = 16 \text{ Yes} \end{array}$
<p>5. $9 = x + 2$</p> $\begin{array}{r} 9 = x + 2 \\ -2 \quad -2 \\ \hline 7 = x \end{array}$ <p style="text-align: center;">{7}</p>	<p>Check:</p> $\begin{array}{l} 9 = x + 2 \\ 9 = 7 + 2 \text{ ?} \\ 9 = 9 \text{ Yes} \end{array}$
<p>7. $8 = -5 + x$</p> $\begin{array}{r} 8 = -5 + x \\ +5 \quad +5 \\ \hline 13 = x \end{array}$ <p style="text-align: center;">{13}</p>	<p>Check:</p> $\begin{array}{l} 8 = -5 + x \\ 8 = -5 + 13 \\ 8 = 8 \text{ Yes} \end{array}$
<p>2. $y + 3 = -10$</p> <p>Check:</p>	<p>4. $m - 9 = 4$</p> <p>Check:</p>
<p>6. $-8 = x + 4$</p> <p>Check:</p>	<p>8. $12 = 5 + a$</p> <p>Check:</p>
<p>Answers: 1. {-4}; 3. {19}; 5. {7}; 7. {13}</p>	

Solve each equation and check your solutions.	
<p>9. $x - 5.6 = -3.2$</p> $\begin{array}{r} +5.6 \\ x - 5.6 = -3.2 \\ \hline x = 2.4 \end{array}$ <p style="text-align: center;">{2.4}</p>	<p>Check:</p> $\begin{array}{l} x - 5.6 = -3.2 \\ 2.4 - 5.6 = -3.2 ? \\ -3.2 = -3.2 \text{ Yes} \end{array}$
<p>11. $-5.0 = p + 4.3$</p> $\begin{array}{r} -4.3 \\ -5.0 = p + 4.3 \\ \hline -9.3 = p \end{array}$ <p style="text-align: center;">{-9.3}</p>	<p>Check:</p> $\begin{array}{l} -5 = p + 4.3 \\ -5 = -9.3 + 4.3 ? \\ -5 = -5 \text{ Yes} \end{array}$
<p>13. $4.3 + m = 4.3$</p> $\begin{array}{r} -4.3 \\ 4.3 + m = 4.3 \\ \hline m = 0 \end{array}$ <p style="text-align: center;">{0}</p>	<p>Check:</p> $\begin{array}{l} 4.3 + m = 4.3 \\ 4.3 + 0 = 4.3 ? \\ 4.3 = 4.3 \text{ Yes} \end{array}$
<p>10. $y - 51.9 = -4.6$</p>	<p>Check:</p>
<p>12. $-9 = y + 1.5$</p>	<p>Check:</p>
<p>14. $-2 + x = -2$</p>	<p>Check:</p>
<p>Answers: 9. {2.4}; 11. {-9.3} 13. {0}</p>	

Solve each equation and check your solutions.		
<p>15. $\frac{-4x}{-4} = \frac{36}{-4}$</p> <p>$x = -9$</p> <p>$\{-9\}$</p>	<p>Check:</p> <p>$-4x = 36$</p> <p>$-4 \cdot -9 = 36?$</p> <p>$36 = 36$ Yes</p>	<p>16. $-2x = 52$</p> <p>Check:</p>
<p>17. $4 \cdot \frac{x}{4} = 2.9 \cdot 4$</p> <p>$x = 11.6$</p> <p>$\{11.6\}$</p>	<p>Check:</p> <p>$\frac{x}{4} = 2.9$</p> <p>$\frac{11.6}{4} = 2.9?$</p> <p>$2.9 = 2.9$ Yes</p>	<p>18. $\frac{x}{5} = -1.4$</p> <p>Check:</p>
<p>19. $\frac{4}{1} \cdot \frac{1}{4}x = \frac{3}{8} \cdot \frac{4}{1}$</p> <p>$x = \frac{3}{2}$</p> <p>$\{\frac{3}{2}\}$</p>	<p>Check:</p> <p>$\frac{1}{4}x = \frac{3}{8}$</p> <p>$\frac{1}{4} \cdot \frac{3}{2} = \frac{3}{8}?$</p> <p>$\frac{3}{8} = \frac{3}{8}$ Yes</p>	<p>20. $-\frac{3}{5}y = \frac{2}{3}$</p> <p>Check:</p>
<p>21. $3 \cdot -7.1 = \frac{x}{3} \cdot 3$</p> <p>$-21.3 = x$</p> <p>$\{-21.3\}$</p>	<p>Check:</p> <p>$-7.1 = \frac{x}{3}$</p> <p>$-7.1 = \frac{-21.3}{3}?$</p> <p>$-7.1 = -7.1$ Yes</p>	<p>22. $14 = \frac{y}{-2}$</p> <p>Check:</p>
<p>23. $-x = 5$</p> <p>$-1 \cdot -x = 5 \cdot -1$</p> <p>$x = -5$</p> <p>$\{-5\}$</p>	<p>Check:</p> <p>$-x = 5$</p> <p>$-(-5) = 5?$</p> <p>$5 = 5$ Yes</p>	<p>24. $4.3 = -y$</p> <p>Check:</p>
<p>25. $\frac{1}{3} \cdot 3x = -\frac{2}{3} \cdot \frac{1}{3}$</p> <p>$x = -\frac{2}{9}$</p> <p>$\{-\frac{2}{9}\}$</p>	<p>Check:</p> <p>$3x = -\frac{2}{3}$</p> <p>$3 \cdot -\frac{2}{9} = -\frac{2}{3}?$</p> <p>$-\frac{2}{3} = -\frac{2}{3}$ Yes</p>	<p>26. $5x = \frac{1}{2}$</p> <p>Check:</p>
<p>Answers: 15. $\{-9\}$; 17. $\{11.6\}$; 19. $\{\frac{3}{2}\}$; 21. $\{-21.3\}$; 23. $\{-5\}$; 25. $\{-\frac{2}{9}\}$</p>		

Translate each mathematical sentence into an equation and solve. Check your solution.

27. The **product** of -5 and a **number** is 27

$$\boxed{-5 \cdot x = 27}$$

Check:

$$-5 \cdot -\frac{27}{5} = 27?$$

$$27 = 27 \text{ Yes}$$

$$\frac{-5x}{-5} = \frac{27}{-5}$$

$$\boxed{x = -\frac{27}{5}}$$

28. The product of 12 and a number is 48.

29. The **sum** of 10 and a **number** is -45 .

$$\boxed{10 + x = -45}$$

Check:

$$10 + -55 = -45?$$

$$-45 = -45 \text{ Yes}$$

$$\frac{-10}{-10} \quad \frac{-10}{-10}$$

$$\boxed{x = -55}$$

30. The sum of 1.5 and a number is 5.

31. Ten **less than** a **number** is 38.

$$\boxed{x - 10 = 38}$$

Check:

$$48 - 10 = 38?$$

$$38 = 38 \text{ Yes}$$

$$\frac{+10}{+10} \quad \frac{+10}{+10}$$

$$\boxed{x = 48}$$

32. Twelve less than a number is 3.

Answers: 27. $-5x = 27$, $x = -\frac{27}{5}$; 29. $10 + x = -45$, $x = -55$; 31. $x - 10 = 38$, $x = 48$