Answer Key · Lesson 5.5: Solving Rational Equations

School Launch · Algebra II · Unit 5 · Worksheet A · for the parent

Key

1. $x = 4$

Solve and check for extraneous solutions: $\frac{5}{x+3} + 1 = \frac{12}{7}$.

2. $x = 5$

Solve and check for extraneous solutions: $\frac{6}{x+2} + 1 = \frac{13}{7}$.

3. $x = -1$

Solve and check for extraneous solutions: $\frac{5}{x+5} + 1 = \frac{9}{4}$.

4. $x = -2$

1. Multiply both sides by the LCD $6\,(x - 4)$ (so $x \neq 4$)
2. Result: $5x + 10$
3. Solve: $x = -2$; no denominator is zero, so it checks

Solve and check for extraneous solutions: $\frac{5}{x-4} + 1 = \frac{1}{6}$.

5. $x = 4$

1. Multiply both sides by the LCD $5\,(x + 1)$ (so $x \neq -1$)
2. Result: $8 - 2x = 0$
3. Solve: $x = 4$; no denominator is zero, so it checks

Solve and check for extraneous solutions: $\frac{2}{x+1} + 1 = \frac{7}{5}$.

6. $x = -4$

1. Multiply both sides by the LCD $5\,(x - 1)$ (so $x \neq 1$)
2. Result: $6x + 24 = 0$
3. Solve: $x = -4$; no denominator is zero, so it checks

Solve and check for extraneous solutions: $\frac{6}{x-1} + 1 = -\frac{1}{5}$.

7. $x = 6$

1. Multiply both sides by the LCD $x - 5$ (so $x \neq 5$)
2. Result: $6 - x = 0$
3. Solve: $x = 6$; no denominator is zero, so it checks

Solve and check for extraneous solutions: $\frac{1}{x-5} + 1 = 2$.

8. $x = -4$

1. Multiply both sides by the LCD $3\,(x - 5)$ (so $x \neq 5$)
2. Result: $x + 4 = 0$
3. Solve: $x = -4$; no denominator is zero, so it checks

Solve and check for extraneous solutions: $\frac{3}{x-5} + 1 = \frac{2}{3}$.

9. $x = -3$

1. Multiply both sides by the LCD $x - 1$ (so $x \neq 1$)
2. Result: $x + 3 = 0$
3. Solve: $x = -3$; no denominator is zero, so it checks

Solve and check for extraneous solutions: $\frac{4}{x-1} + 1 = 0$.

10. $x = 6$

1. Multiply both sides by the LCD $5\,(x + 4)$ (so $x \neq -4$)
2. Result: $12 - 2x = 0$
3. Solve: $x = 6$; no denominator is zero, so it checks

Solve and check for extraneous solutions: $\frac{4}{x+4} + 1 = \frac{7}{5}$.