

LESSON
8-5**Practice A****Solving Rational Equations and Inequalities**

Find the least common denominator (LCD) for each pair.

1. $\frac{x}{1}$ and $\frac{3}{x}$

2. $\frac{3}{x-6}$ and $\frac{x}{4}$

3. $\frac{1}{x^2}$ and $\frac{1}{x^3}$

Solve each equation. The first one is done for you.

4. $\frac{2}{1} + \frac{1}{x} = \frac{4}{1}$ LCD = x

$$\frac{2x}{x} + \frac{1}{x} = \frac{4x}{x}$$

$$2x + 1 = 4x \quad \text{Multiply by } x.$$

$$1 = 2x$$

$$\frac{1}{2} = x$$

5. $\frac{12}{x} + 4 = 3$

6. $x + 2 = \frac{3}{x}$

Solve each inequality. The first one is done for you.

7. $\frac{8}{x+2} < 2$

8. $\frac{10}{x-5} \geq 2$

$$x < -2 \text{ or } x > 2$$

9. $\frac{3}{x-1} < 3$

Solve.

10. List all of the extraneous solutions for the equation $\frac{2x}{x+4} = \frac{x}{x-1}$.

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 x

2. $\frac{3}{x-6}$ and $\frac{x}{4}$

 $4(x-6)$

3. $\frac{1}{x^2}$ and $\frac{1}{x^3}$

 x^3

Solve each equation. The first one is done for you.

4. $\frac{2}{1} + \frac{1}{x} = \frac{4}{1}$ LCD = x

$\frac{2x}{x} + \frac{1}{x} = \frac{4x}{x}$

$2x + 1 = 4x$ Multiply by x .

$1 = 2x$

$\frac{1}{2} = x$

5. $\frac{12}{x} + 4 = 3$

 $x = -12$

6. $x + 2 = \frac{3}{x}$

 $x = -3, x = 1$

Solve each inequality. The first one is done for you.

7. $\frac{8}{x+2} < 2$

 $x < -2$ or $x > 2$

8. $\frac{10}{x-5} \geq 2$

 $5 < x \leq 10$

9. $\frac{3}{x-1} < 3$

 $x < 1$ or $x > 2$

Solve.

10. List all of the extraneous solutions for the equation $\frac{2x}{x+4} = \frac{x}{x-1}$. $x = -4$ and 1 because they make the denominators of the original equation equal to 0