

## Adding and Subtracting Rational Expressions 9-4

### With monomial denominators

1.  $\frac{9}{10a} + \frac{4a}{5b}$

STEP 1: Reduce the fractions (if necessary).

STEP 2: Find the LCD.

STEP 3: Multiply to get a common denominator.

STEP 4: Add the numerators.

2.  $\frac{2x}{5ab^3} + \frac{4y}{3a^2b^2}$

3.  $\frac{-7xy}{3x} + \frac{4y^2}{2y}$

### With binomial denominators

4.  $\frac{x+2}{x-1} - \frac{x-3}{x+1}$

STEP 1: FACTOR the denominators.

STEP 2: Reduce the fractions (if necessary).

STEP 3: Find the LCD.

STEP 4: Multiply to get a common denominator.

STEP 5: Add the numerators.

5.  $\frac{1}{4a^2 - 4a + 1} + \frac{1-a}{1-2a}$

6.  $\frac{x}{x^2 + 5x + 6} - \frac{2}{x^2 + 4x + 4}$

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$$7. \frac{x-5}{2x-6} - \frac{x-7}{4x-12}$$

$$8. \frac{3x+3}{x^2+2x+1} + \frac{x-1}{x^2-1}$$

### Complex Fractions with Addition and Subtraction

$$9. \frac{x + \frac{x}{3}}{x - \frac{x}{6}}$$

STEP 1: Find the LCD.

STEP 2: Multiply every term by the LCD.

STEP 3: Reduce (if necessary).

$$10. \frac{\frac{2x}{y} + 1 - \frac{y}{x}}{\frac{2x}{y} + \frac{y}{x} - 3}$$

$$11. \frac{\frac{1}{a} + \frac{1}{b}}{\frac{1}{a} - \frac{1}{b}}$$

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$$12. \frac{\frac{r+6}{r} - \frac{1}{r+2}}{\frac{r^2+4r+3}{r^2+r}}$$

$$13. \frac{\frac{2}{x-y} + \frac{1}{x+y}}{\frac{1}{x-y}}$$

$$14. \frac{\frac{n+5 - \frac{12}{n+1}}{n+9} - \frac{5}{n+1}}{n}$$

$$15. \frac{\frac{x - \frac{5x}{x+2}}{x-3}}{x}$$