

# Least Common Denominator - LCD

Multiple

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

$$\frac{2}{4} + \frac{1}{4} = \frac{3}{4}$$

How to Find LCD of Rational Expressions:

- Factor each denominator. Any factor appearing more than once, express as powers.

$$(x-3)(x-3) \rightarrow (x-3)^2$$

- List all factors that appear.

- The LCD is product from Step 2

Find LCD

$$\frac{1}{5} + \frac{1}{y}$$

$$\text{LCD: } 5y$$

$$\frac{2}{x^2} - \frac{3}{7x}$$

$$\text{LCD: } 7x^2$$

$$\frac{1}{18x^3y} + \frac{5}{27x^2y^3}$$

$$\text{LCD: } 54x^3y^3$$

$$\frac{5}{x} - \frac{7y}{x+3}$$

$$\text{LCD: } x(x+3)$$

$$\frac{1}{3x^2-6x} + \frac{x^2}{x^2-4x+4}$$

$$\text{LCD: } 3x(x-2)^2$$

$$x^2-3x, x-3, x$$

$$x(x-3), x-3, x$$

$$\text{LCD: } x(x-3)$$

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Rewrite using LCD.

$$\frac{3a}{5b^2}, \frac{2}{10a^3b} \quad \text{LCD} = 10a^3b^2$$

$$\frac{3a}{5b^2} \cdot \frac{2a^3}{2a^3} = \frac{6a^4}{10a^3b^2}$$

$$\frac{2}{10a^3b} \cdot \frac{b}{b} = \frac{2b}{10a^3b^2}$$

Build Up Denominators.

$$50 \cdot \frac{9}{8cd^2} = \frac{?}{40c^2d^2}$$

$$? = 9 \cdot 5c$$

$$= \boxed{45c}$$

$$\frac{5m}{2(m-n)} = \frac{?}{6(m^2-n^2)}$$

$$6(m-n)(m+n)$$

$$? = 5m \cdot 3(m+n)$$

$$= 15m(m+n)$$

$$= \boxed{15m^2 + 15mn}$$

$$\frac{y}{y+2} = \frac{?}{-2y^2 - 10y - 12}$$

$$-2(y^2 + 5y + 6)$$

$$= 2(y+2)(y+3)$$

$$? = y \cdot -2(y+3)$$

$$= -2y(y+3)$$

$$= \boxed{-2y^2 - 6y}$$

$$\boxed{(x-3)(x-2)}$$