

Simplifying Complex Fractions

$$\sqrt{1} \quad \frac{\frac{3}{x}}{\frac{15}{x}} = \frac{3}{x} \div \frac{15}{x} = \frac{3}{x} \cdot \frac{x}{15} = \frac{\cancel{3} \cdot \cancel{x}}{\cancel{x} \cdot 5} = \frac{1}{5}$$

$$\sqrt{2} \quad \frac{\frac{4}{5}}{2^3 + 9} = \frac{4}{5} \div 17 = \frac{4}{5} \cdot \frac{1}{17} = \frac{4}{85}$$

$$\sqrt{3} \quad \frac{\frac{c^2}{8}}{\frac{c}{2}} = \frac{c^2}{8} \div \frac{c}{2} = \frac{c^2}{8} \cdot \frac{2}{c} = \frac{\cancel{2} \cdot c^{\cancel{2}-1}}{\cancel{4} \cdot \cancel{c}} = \frac{c}{4}$$

$$\sqrt{4} \quad \frac{\frac{1}{3} + \frac{3}{4}}{\frac{7}{8} - \frac{1}{2}} = \frac{1 \cdot 4}{3 \cdot 4} + \frac{3}{4} = \frac{4}{12} + \frac{3 \cdot 3}{4 \cdot 3} = \frac{4}{12} + \frac{9}{12} = \frac{13}{12}$$

$$\frac{7}{8} - \frac{1}{2} = \frac{7 \cdot 1}{8 \cdot 1} - \frac{1 \cdot 4}{2 \cdot 4} = \frac{7}{8} - \frac{4}{8} = \frac{3}{8}$$

$$\frac{13}{12} \div \frac{3}{8} = \frac{13}{12} \cdot \frac{8}{3} = \frac{\cancel{13} \cdot \cancel{8}}{\cancel{12} \cdot 3} = \frac{13 \cdot 2 \cdot \cancel{4}}{4 \cdot 3 \cdot 3} = \frac{26}{9}$$