Complex fraction

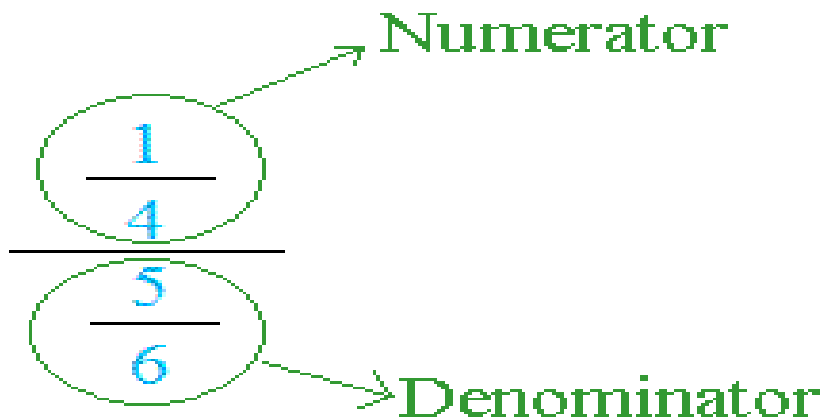
Definition

Complex fractions are fractions whose numerator, denominator, or both are also fractions.

Another way to put it is to say that a complex fraction is a ratio of two fractions

All the following are complex fractions:

Example



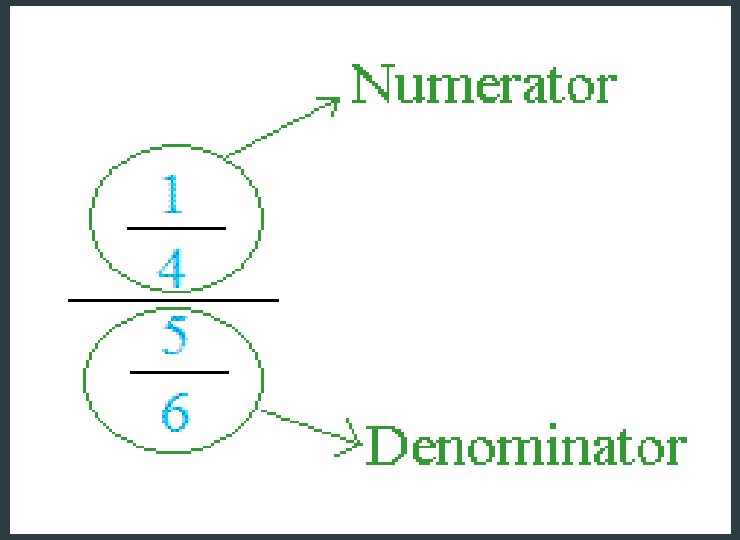
Helpful Tips

Complex fractions can look quite scary and complicated.

The strategy is to break the complex fraction into smaller pieces that you can solve easily.

How can this be done?

Step 1: Rewrite the complex fraction as a regular fraction



$$\frac{1}{4} \div \frac{5}{6}$$

Step 2: Divide using the rules of division

Remember **KCF**

Keep

Change

Flip

$\frac{1}{4} \div \frac{5}{6}$ **becomes** $\frac{1}{4} \cdot \frac{\mathbf{6}}{\mathbf{5}}$

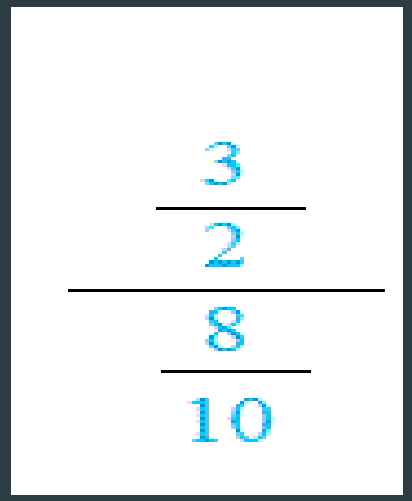
Step 3: Simplify

$$\frac{1}{\cancel{4}_{2}} \cdot \frac{\cancel{6}^{3}}{5}$$

$$= \frac{3}{10}$$

Let’s Practice

Write the complex fraction below in a simpler form



$$\frac{\frac{3}{2}}{\frac{8}{10}}$$

$$\frac{3}{2} \div \frac{8}{10}$$

Now Solve

$$\frac{\frac{3}{2}}{\frac{8}{10}}$$

$$\frac{3}{2} \div \frac{8}{10}$$

$$= \frac{3}{\cancel{2}_{1}} \cdot \frac{\cancel{10}^{5}}{8}$$

$$= \frac{15}{8} = 1\frac{7}{8}$$

Let's Step it Up

$$\frac{\frac{2}{5}}{3}$$

$$\frac{2}{5} \div \frac{3}{1}$$

$$= \frac{2}{5} \cdot \frac{1}{3}$$

$$= \frac{2}{15}$$

$$\frac{2}{\frac{3}{2}-\frac{4}{3}}$$

First rewrite the expression in a simpler form

$$2 \div \left(\frac{3}{2} - \frac{4}{3}\right)$$

Next simplify the expression with more than one terms. In this case it is the denominator.

$$\left(\frac{3}{2} - \frac{4}{3}\right) = \frac{9}{6} - \frac{8}{6} = \frac{1}{6}$$

Now substitute your answer for the expression in the problem

$$2 \div \left(\frac{3}{2} - \frac{4}{3}\right) = 2 \div \frac{1}{6}$$

Next use KCF and solve your new fraction problem

$$= \frac{2}{1} \bullet \frac{6}{1} = 12$$