

Fractions

How do I divide fractions?

To divide fractions follow this rule:

“invert and multiply”

Example

$$\frac{3}{4} \div \frac{1}{8} = ?$$

To get an answer, you need to do two things to the original problem.

First: Take the fraction on the right side of the \div symbol and **invert** it (*flip it upside down*): $\frac{3}{4} \div \frac{1}{8}$ becomes $\frac{3}{4} \times \frac{8}{1}$

Second: Change the division symbol to **multiplication**: $\frac{3}{4} \div \frac{1}{8}$ becomes $\frac{3}{4} \times \frac{8}{1}$

Now solve the problem like any other multiplication problem:

$$\frac{3}{4} \times \frac{8}{1} = \frac{\cancel{3}^1 \times \cancel{8}^2}{\cancel{4}_1 \times 1} = \frac{3 \times 2}{1 \times 1} = \frac{6}{1} = \boxed{6}$$

Example

Note how the *“invert and multiply”* rule is used for this problem: $\frac{5}{16} \div \frac{1}{2} = ?$

$$\text{Invert: } \frac{5}{16} \div \frac{2}{1} =$$

$$\text{Multiply: } \frac{5}{16} \times \frac{2}{1} =$$

$$\frac{\cancel{5}^1 \times \cancel{2}^1}{\cancel{16}_8 \times 1} = \frac{5 \times 1}{8 \times 1} = \boxed{\frac{5}{8}}$$

NOTE: A common mistake that people make is to cancel **before** they invert and multiply. *Do not cancel until after* you invert the fraction on the right and change the division symbol to multiplication.