

Concept: Dividing Fractions

Name: _____

COMPUTER COMPONENT

Instructions: In  follow the **Content Menu** path:

Fractions > Dividing Fractions

 Work through all Sub Lessons of the following Lessons **in order**:

- *Understanding Division*
- *Examples with Diagrams*
- *Patterns from Examples*
- *Algebraic Explanation*
- *Examples without Diagrams*



As you work through the computer exercises, you will be prompted to make notes in your notebook/math journal.

NOTES

Working with diagrams can be quite effective as you aim to make connections between concepts. *This certainly holds true for the division of fractions.*

1. We want to find $\frac{2}{4} \div \frac{1}{8}$.

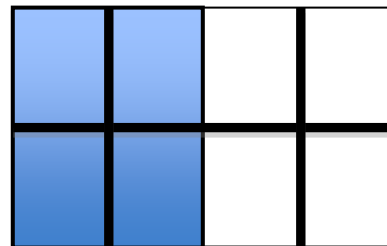
This means that we want to find how many $\frac{1}{8}$ are in $\frac{2}{4}$.

First, divide this shape in to 4 equal parts.

Next, shade in *two* of them.

Now, divide the shape in to 8 parts.

How many of the $\frac{1}{8}$ are in $\frac{2}{4}$? 4.

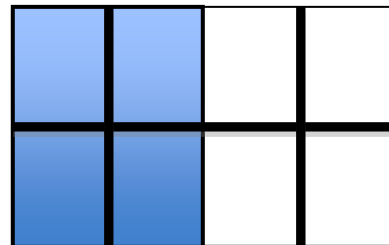


We want to find...

How many of the $\frac{1}{8}$ are in $\frac{2}{4}$?

How many of the $\frac{1}{8}$ are in $\frac{4}{8}$?

= 4 of course!



After a concept is understood, rules or procedures may often be used to make your calculations more efficient.

2. Dividing Fractions Rule:

To divide by a fraction, multiply by its reciprocal.

The reciprocal of $\frac{1}{6}$ is $\frac{6}{1}$, just as $\frac{4}{3}$ is $\frac{3}{4}$.

List some examples of reciprocals:

$$\frac{2}{5} \text{ is } \frac{5}{2} \quad \frac{6}{7} \text{ is } \frac{7}{6}$$

When we are asked to divide: $\frac{3}{4} \div \frac{3}{8} =$

We know that the question is asking us to find $\frac{3}{8}$ of $\frac{3}{4}$

Then, we find the reciprocal of divisor and multiply.

$$\frac{3}{4} \div \frac{3}{8} = \text{ becomes } \frac{3}{4} \times \frac{8}{3} = \frac{1}{1} \times \frac{2}{1} = 2 \quad \text{or} \quad \frac{3}{4} \times \frac{8}{3} = \frac{24}{12} = 2$$

3. Multiplying Fractions- Review

(a) $\frac{1}{2} \times \frac{1}{4} = \frac{1}{8}$

(b) $\frac{2}{3} \times \frac{9}{10} = \frac{1}{1} \times \frac{3}{5} = \frac{3}{5}$

(c) $\frac{5}{12} \times \frac{16}{20} = \frac{1}{3} \times \frac{4}{4} = \frac{1}{3}$

(d) $\frac{45}{49} \times \frac{21}{25} = \frac{9}{7} \times \frac{3}{5} = \frac{27}{35}$

OFF COMPUTER EXERCISES

1. Divide the following Fractions.

(a) $\frac{1}{2} \div \frac{2}{3} = \frac{1}{2} \times \frac{3}{2} = \frac{3}{4}$

(b) $\frac{2}{5} \div \frac{4}{7} = \frac{2}{5} \times \frac{7}{4} = \frac{14}{20} = \frac{7}{10}$

(c) $\frac{4}{5} \div \frac{8}{15} = \frac{4}{5} \times \frac{15}{8} = \frac{1}{1} \times \frac{3}{2} = \frac{3}{2}$

(d) $\frac{3}{5} \div \frac{9}{25} = \frac{3}{5} \times \frac{25}{9} = \frac{1}{1} \times \frac{5}{3} = \frac{5}{3}$

(e) $\frac{7}{8} \div \frac{21}{16} = \frac{7}{8} \times \frac{16}{21} = \frac{1}{1} \times \frac{2}{3} = \frac{2}{3}$

(f) $\frac{12}{15} \div \frac{18}{20} = \frac{12}{15} \times \frac{20}{18} = \frac{2}{3} \times \frac{4}{3} = \frac{8}{9}$

(g) $\frac{16}{35} \div \frac{10}{25} = \frac{16}{35} \times \frac{25}{10} = \frac{8}{7} \times \frac{5}{5} = \frac{8}{7}$

(g) $\frac{63}{121} \div \frac{21}{22} = \frac{63}{121} \times \frac{22}{21} = \frac{3}{11} \times \frac{2}{1} = \frac{6}{11}$

2. Bob wants to share his chocolate bar with his friends. He has $\frac{2}{3}$ of a bar and he wants to give each friend $\frac{1}{6}$ of a chocolate bar. *How many friends can Bob feed?*

$$\frac{2}{3} \div \frac{1}{6} = \frac{2}{3} \times \frac{6}{1} = 4 \text{ friends}$$

3. Farmer Fred has $\frac{4}{5}$ of an acre of farmland. He wants to plant 8 different crops this year. *How many acres will he have for each crop?*

$$\frac{4}{5} \div 8 = \frac{4}{5} \times \frac{1}{8} = \frac{1}{10} \text{ acre / crop}$$

4. *How many strips of wallpaper $\frac{4}{45}$ m long can be cut from a strip $\frac{2}{5}$ m long?*

$$\frac{2}{5} \div \frac{4}{45} = \frac{2}{5} \times \frac{45}{4} = \frac{1}{1} \times \frac{9}{2} = 4.5 \text{ strips}$$