

## 1.3 Multiplying & Dividing Fractions

Recall: Multiplication is just repeated addition.  
The result of multiplication is called the product.

Example 2: Multiply.

a)  $3 \cdot \frac{2}{5} =$   
=



b)  $4 \cdot \frac{3}{7} =$   
=



So the result is the product of the numerators over the denominator.

$$3 \cdot \frac{2}{5} = \frac{3 \cdot 2}{5} \\ = \frac{6}{5}$$

$$4 \cdot \frac{3}{7} = \frac{4 \cdot 3}{7} \\ = \frac{12}{7}$$

c)  $\frac{2}{3} \cdot \frac{1}{2}$  This is "half of two-thirds" which is one-third.

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



Multiply the numerators together and multiply the denominators together.

Click here! 

c)  $\frac{4}{7} \cdot \frac{2}{5}$

d)  $\frac{4}{3} \cdot \frac{5}{12}$

e)  $\frac{11}{4} \cdot \frac{8}{33}$

Notice



When multiplying fractions, you can reduce any number in the numerator with any number in the denominator before you multiply.

Example 3: Simplify, then multiply.

a)  $\frac{5}{3} \cdot \frac{4}{25}$

b)  $\frac{6}{7} \cdot \frac{21}{48}$

### **Dividing Fractions**

Example 4: Divide.

$\frac{3}{4} \div \frac{5}{7} = ???$  This is asking how many times  $\frac{5}{7}$  goes into  $\frac{3}{4}$ .

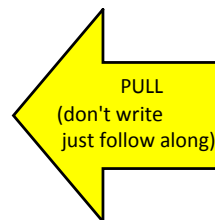
Divide and multiply:

$$\frac{3}{4} \div \frac{5}{7} = \frac{3}{4} \cdot \frac{7}{5} = \frac{21}{20}$$

This is called  
the reciprocal

Click  
here!

Why does this work?



Example 5: Divide.

a)  $\frac{6}{5} \div \frac{7}{2}$

b)  $\frac{4}{3} \div \left(-\frac{5}{9}\right)$

c)  $\frac{3}{2} \cdot \frac{1}{6} \div \frac{5}{12}$

d)  $\left(\frac{1}{2} - \frac{4}{5}\right) \div \frac{9}{25}$

Example 6: Suppose your friend has half a chocolate bar left and you eat  $\frac{2}{3}$  of it. What fraction of the whole chocolate bar is left?



Example 7: Kennedy has a jar of jelly beans that is  $\frac{2}{3}$  full.

She wants to divide it into 3 equal parts to share with her friends.  
What fraction of the whole jar will each friend have?

