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# Dividing Fractions

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How many groups of 10 are there in 50?

- ① 
- ② 
- ③ 
- ④ 
- ⑤ 

5 groups of 10  
are in 50



# How many groups of 13 are there in 39?

How can we set this up as a mathematical equation?

$$39 \div 13$$

$$13 \times 3$$

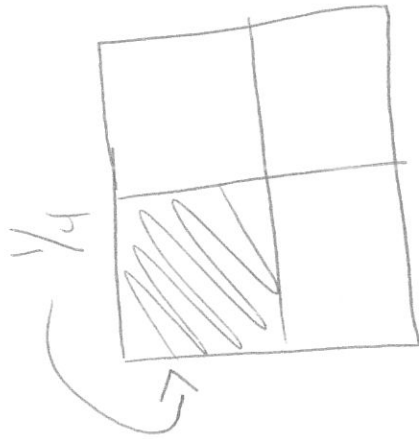
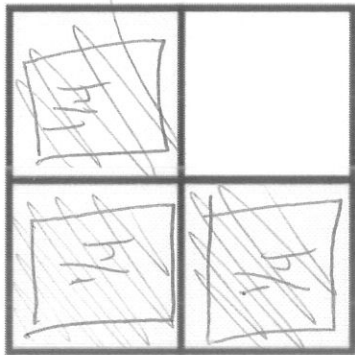
$$10 + 10 + 10$$
$$3 + 3 + 3$$



$\frac{3}{4}$  divided by  $\frac{1}{4}$

How many groups of  $\frac{1}{4}$  can I get out of  $\frac{3}{4}$ ?

$\frac{3}{4}$



3  $\frac{1}{4}$ 's are in  $\frac{3}{4}$



# Trick shot!

I can get 3 groups of  $\frac{1}{4}$  out of  $\frac{3}{4}$ !

Trick shot: whenever the denominators are the same I can just divide the numerators

$$\frac{3}{4} \div \frac{1}{4} \leftarrow 4 = \text{same denominator}$$

$4 \div 4 = 1$        $\rightarrow$  so it CANCELS out!

$$\boxed{3 \div 1 = 3}$$

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Try it out:  $\frac{5}{8} \div \frac{1}{8}$

$$\frac{5}{8} \div \frac{1}{8}$$

so  
8 cancel out  
and

$$5 \div 1 = 5$$



# Trick shot practice?

Ms. Tiffany has  $\frac{7}{8}$  of a pan of brownies left on Monday night. On Tuesday she cuts up her pan into  $\frac{1}{4}$  pieces. How many days will Ms. Tiffany have brownies for herself?

$$\frac{7}{8} \div \frac{1}{4} \times 2$$
$$\frac{7}{8} \div \frac{2}{8}$$

- ① Find a common denominator
- ② Divide the numerators

$$7 \div 2 = \frac{3}{2}$$

$$\boxed{3 \frac{1}{2}}$$



# But, what if the trick shot doesn't work ALL the time

What would I do if I wanted to divide the following:

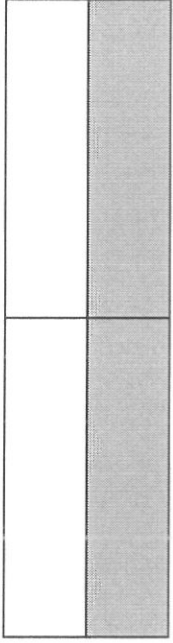
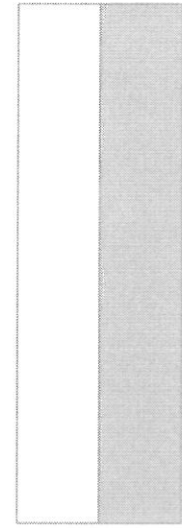
$$\frac{1}{4} \div \frac{1}{2}$$

What do you notice about these fractions?

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**Are these the same? Explain why or why not?**



# Equivalent fractions

$$2/4 \div 1/4 =$$

\*Now, I have the same denominator

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$$\frac{5}{6} \div \frac{1}{3}$$

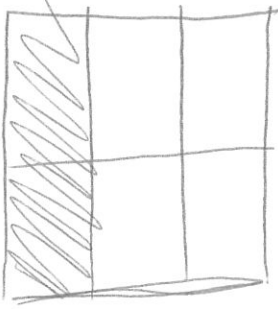
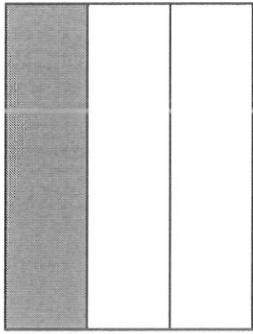
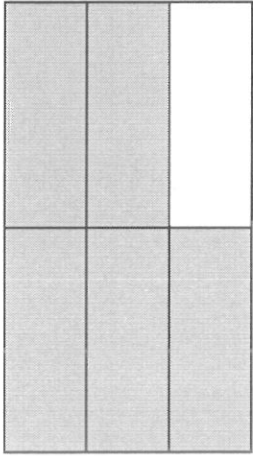
1. Set up an equivalent denominator

2.

①  $\frac{2}{6}$

②  $\frac{2}{6}$

$\frac{1}{2}$



$\frac{1}{3} \text{ is } = \frac{2}{6}$

$2 \frac{1}{2}$

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# What if I wasn't able to find the LCD

1. Multiply the denominators together

2.  $\frac{5}{6} \div \frac{1}{3}$

a.  $6 \times 3 = 18$  ← new denominator

3. So,

$$\frac{15}{18} \div \frac{6}{18}$$

4.  $15 \div 6 \Rightarrow 6 \sqrt{15} \begin{array}{r} 2 \\ -12 \\ 3 \end{array} \quad 2 \frac{3}{6} \text{ or } 2 \frac{1}{2}$




# What does this mean mathematically?

You can KEEP CHANGE FLIP using the reciprocal

$$\frac{3}{4} \times \frac{4}{3} = 1$$

Diagram illustrating the reciprocal relationship between  $\frac{3}{4}$  and  $\frac{4}{3}$ . The word "RECIPROCAL" is written vertically above the second fraction. Arrows indicate the cross-multiplication: one arrow from the numerator 3 to the denominator 3, and another from the denominator 4 to the numerator 4. A checkmark is placed next to the resulting 1.



$$5/9 \div 1/3$$

Keep: 5/9

Change: division to multiplication

Flip:  $1/3$  to  $3/1$

Now, I have  $5/9 \times 3/1 =$

$$5/9 \div 1/3$$

$$5/9 \times 3/1$$

$$\frac{5 \times 3}{9 \times 1} = \frac{15}{9}$$

$$| \frac{6}{9} \text{ or } | \frac{2}{3}$$

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**KCF one more time**

$$7/9 \div 2/3$$

$$5/8 \div 1/5$$

