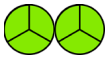
Dividing Fractions: Reciprocal Numbers

One interpretation of division is **measurement division**, where we think: *How many times does one number go into another?* For example, to solve how many times 11 fits into 189, we divide 187 ÷ 11 = 17.

(The other interpretation is equal sharing; we will come to that later.)

Let's apply that to fractions. How many times does  go into  ?

We can solve this just by looking at the pictures: three times. We can write the division: $2 \div \frac{2}{3} = 3$.

To check the division, we multiply: $3 \cdot \frac{2}{3} = \frac{6}{3} = 2$. Since we got the original dividend, it checks.

We can use measurement division to check whether an answer to a division is reasonable.

For example, if I told you that $7 \div 1\frac{2}{3}$ equals $14\frac{1}{3}$, you can immediately see it doesn't make sense:

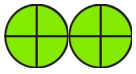
1 2/3 surely does not fit into 7 that many times. Maybe three to four times, but not 14!

You could also multiply to see that: 14-*and-something* times 1-*and-something* is way more than 14, and closer to 28 than to 14, instead of 7.

1. Find the answers that are unreasonable without actually dividing.

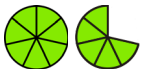
a. $\frac{4}{5} \div 6 = \frac{2}{15}$ **b.** $2\frac{3}{4} \div \frac{1}{4} = \frac{7}{12}$ **c.** $\frac{7}{9} \div 2 = \frac{7}{18}$ **d.** $8 \div 2\frac{1}{3} = 18\frac{1}{3}$ **e.** $5\frac{1}{4} \div 6\frac{1}{2} = 3\frac{1}{8}$

2. Solve with the help of the visual model, checking how many times the given fraction fits into the other number. Then write a division. Lastly, write a multiplication that checks your division.

a. How many times does  go into  ?

$2 \div \frac{3}{4} =$

Check: ____ $\cdot \frac{3}{4} =$

b. How many times does  go into  ?

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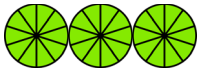
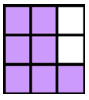
Check:

c. How many times does  go into  ?

3 ÷  =

Check:

d. How many times does  go into  ?

 ÷  =

Check: