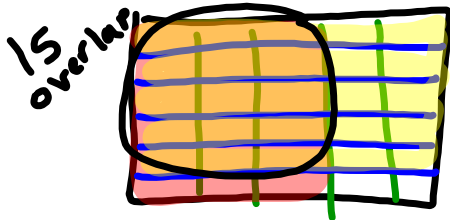


## BEFORE Our Quiz

Reduce all answers

1) Use a rectangular box(grid paper) to multiply  $\frac{3}{5} \times \frac{5}{6}$ .



$$\frac{3}{5} \times \frac{5}{6} = \frac{15}{30} = \frac{1}{2}$$

2) Multiply and reduce the following

a)  $\frac{4}{9} \times \frac{18}{14}$

$\frac{4}{9} \times \frac{18}{14}$   
 $\frac{72}{126}$

$$\frac{2}{1} \times \frac{2}{7}$$

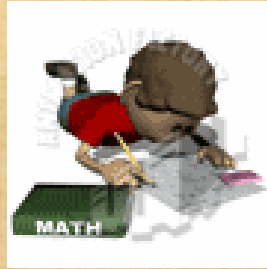
$$\frac{4}{7}$$

b)  $3\frac{1}{4} \times 5\frac{1}{2}$

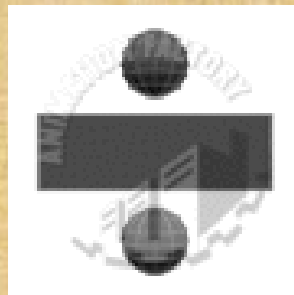
$$\frac{13}{4} \times \frac{11}{2}$$

$$\frac{143}{8}$$

$$17\frac{7}{8}$$



# Dividing Fractions

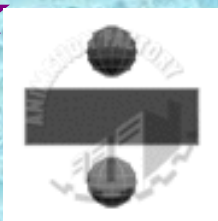


# Reciprocal

- Every **non-zero** fraction has a reciprocal.
- Fractions with a denominator of "0" are undefined.  $\left(\frac{6}{0}\right)$
- To find the **reciprocal** of a fraction, you simply **flip** the fraction !!

$$\frac{4}{5} \quad \curvearrowright \quad \frac{5}{4}$$

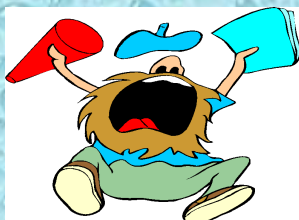




**Express each  
division question as  
a multiplication  
question !!!!**

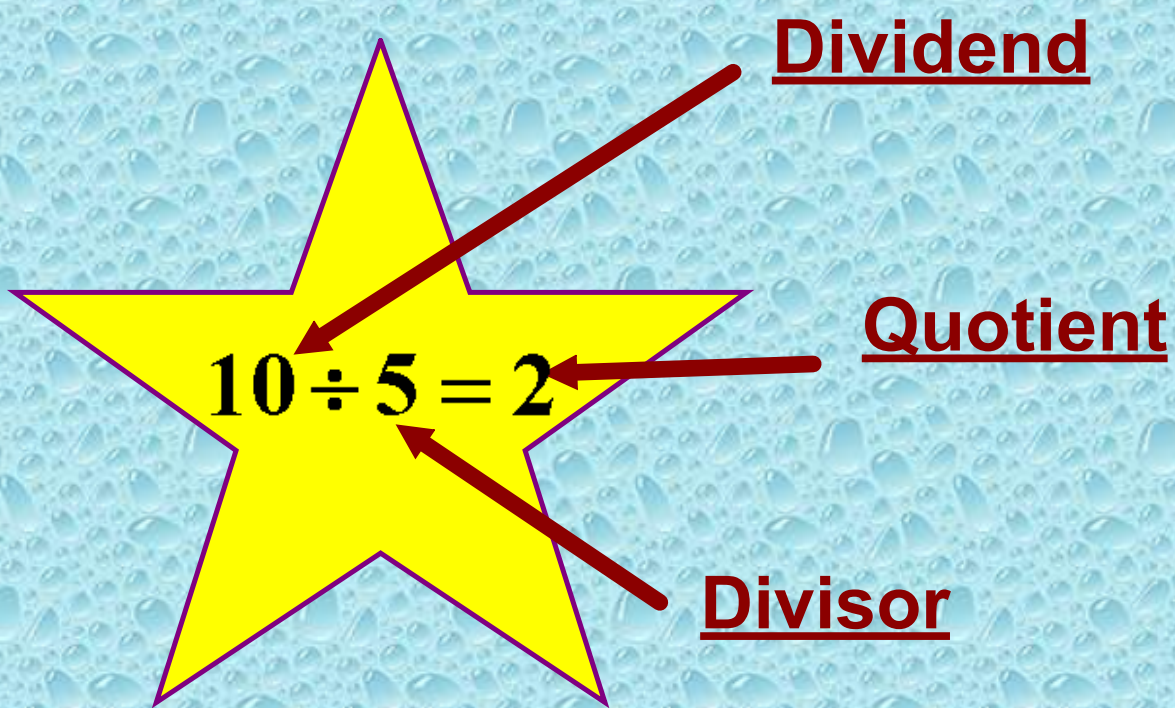
$$4 \div \frac{1}{2} = 8$$

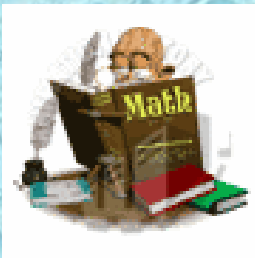
$$4 \times \frac{2}{1} = \frac{8}{1} = 8$$





# Terminology





**Express division as  
multiplication by multiplying  
the dividend by the reciprocal  
of the divisor !!**

$$\frac{4}{5} \div \frac{1}{3} = \frac{4}{5} \times \frac{3}{1} = \frac{12}{5} = 2\frac{2}{5}$$

So what have you discovered about dividing fractions?  
Is there a way to divide fractions without modeling?

### Rule for Dividing Fractions

To divide a fraction, the number before the division sign stays the same, the division sign changes to multiplication and the number after the division sign changes to its reciprocal, then multiply the fractions. Or in other words, invert and multiply.

Reciprocal is when you invert the fraction, the numerator moves to the denominator and the denominator moves up to the numerator.

examples  $\frac{5}{4} \div \frac{4}{5}$      $\frac{10}{7} \div \frac{7}{10}$      $\frac{1}{8} \div \frac{8}{1}$      $\frac{6}{11} \div \frac{11}{6}$

Examples:

$$\begin{aligned} \text{(a)} \quad & \frac{3}{5} \div \frac{4}{7} \\ & = \frac{3}{5} \times \frac{7}{4} \\ & = \frac{21}{20} \\ & \quad | \frac{1}{20} \end{aligned}$$

Always Reduce

$$\begin{aligned} \text{(b)} \quad & \frac{2}{10} \div \frac{8}{15} \\ & = \frac{9}{10} \times \frac{15}{8} \div 5 = \frac{135}{80} \\ & \quad \frac{9}{2} \times \frac{3}{8} \\ & = \frac{27}{16} \\ & = 1 \frac{11}{16} \end{aligned}$$
