Study the following.

reciprocal (ri-**sip**-ruh-kl) – a reciprocal is like the reverse of something. In math it is a fraction turned upside down, or flipped. (3/4 is the reciprocal of 4/3. 1/5 is the reciprocal of 5/1 or 5.)

Say the word out loud and write it in the blank.
reciprocal_____

Write the definition of reciprocal. _____

_____

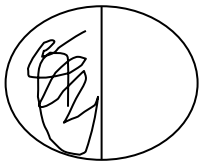
Write the reciprocals of these fractions.

1. $\frac{1}{8}$
2. $\frac{1}{12}$
3. $\frac{2}{3}$
4. $\frac{2}{4}$
5. $\frac{3}{17}$
6. $\frac{1}{9}$

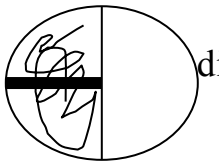
Study the following.

Dividing fractions.

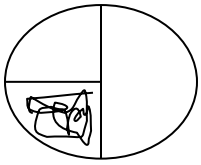
½ ÷ 2 = ¼



½



divide by 2 (divided into 2 sections)



equals ¼

To solve with math, multiply the first fraction by the reciprocal of the second fraction.

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

change 2 to $\frac{2}{1}$ multiply by the reciprocal of $\frac{2}{1}$

Fill in the blank.

To divide a fraction, you multiply by its _____.

Using pictures show ¼ ÷ 2.

Show ¼ ÷ 2 with math.

Show ½ ÷ 3 using pictures and using math.

Solve. Reduce if needed.

1. $\frac{1}{8} \div \frac{2}{3} = \frac{1}{8} \times \frac{3}{2} = \frac{3}{16}$

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

3. $\frac{8}{9} \div \frac{3}{2} =$

4. $\frac{1}{2} \div \frac{7}{1} =$

5. $\frac{2}{4} \div \frac{8}{11} =$

6. $2 \div \frac{2}{3} =$

7. $\frac{1}{10} \div \frac{4}{3} =$

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

9. $5 \div \frac{1}{5} =$

10. $\frac{1}{5} \div 7 =$

What do you do differently when you multiply versus divide fractions?

_____

_____

Multiply and divide the following fractions.

1. ¼ and ¼

2. 2/3 and 1/8

3. 3/5 and 4

4. ½ and 1/2

Add, subtract, multiply, and divide the following.

1. 1/3 and 1/3

2. 2/5 and 1/5

3. 4 and ¼

Solve using pictures.

1. ¼ + ¼ =

2. ½ – ¼ =

3. ½ × 4 =

4. 1/8 ÷ 2 =