

Reciprocal - one of two numbers whose product is 1  $\frac{1}{3} \cdot \frac{3}{1} = 1$

Write the reciprocal of each number.

$\frac{2}{3} = \frac{3}{2}$     $\frac{4}{7} = \frac{7}{4}$     $\frac{5}{1} = \frac{1}{5}$     $\frac{1}{8} = \frac{8}{1}$     $\frac{1}{8} = \frac{8}{1}$     $\frac{1}{4} = \frac{4}{1}$     $\frac{12}{1} = \frac{1}{12}$

How do you write 3 as a fraction?  $\frac{3}{1}$

How is  $\frac{1}{3}$  related to 3? When multiplied they = 1 or it is reciprocal

How are  $\frac{2}{3}$  and  $\frac{3}{2}$  related? When multiplied they = 1 it is reciprocal

How are division and multiplication related?

They are opposite each other

Solve:

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

How many groups of  $\frac{1}{4}$  are in 4  
 $4 \times 4 = 16$     $5 \times 5 = 25$   
 $4 \div \frac{1}{4} = 16$     $5 \div \frac{1}{5} = 25$

6  $3 \div 3 = 1$   
 $\frac{3 \times \frac{1}{3}}{1} = \frac{3}{3} = 1$

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

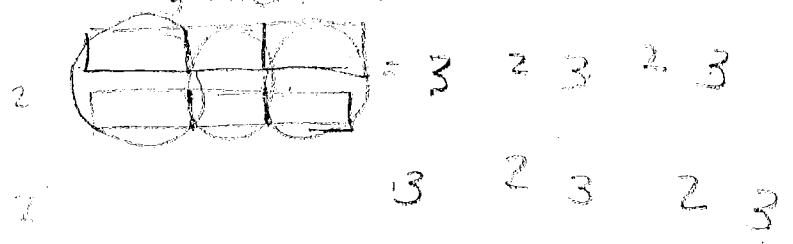
3)  $9 \div 3 = 3$   
 $\frac{9 \times \frac{1}{3}}{1} = \frac{9}{3} = 3$

$12 \div \frac{2}{3} = 18$     $20 \div \frac{2}{5} = 50$   
 $\frac{12 \times \frac{3}{2}}{1} = \frac{36}{2} = 18$     $\frac{20 \times \frac{5}{2}}{1} = \frac{100}{2} = 50$

Do the math

Dividing is the same as multiplying by the divisors reciprocal.

How many groups of  $\frac{2}{3}$  are in 12

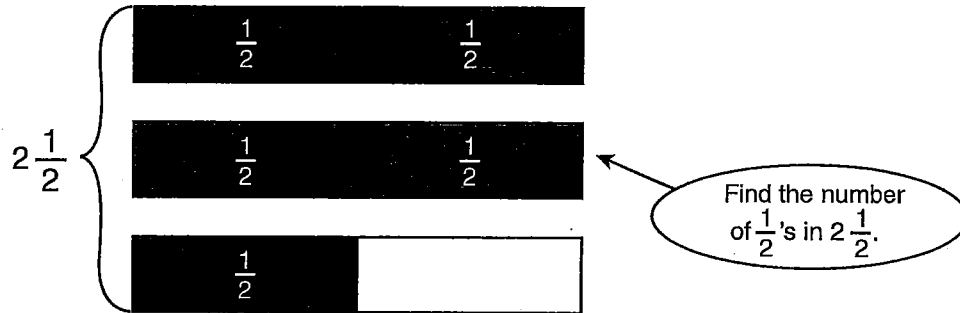


HW

Name \_\_\_\_\_ Date \_\_\_\_\_ Class \_\_\_\_\_

**LESSON**  
**5-3** **Exploration Recording Sheet**  
**Dividing Fractions and Mixed Numbers**

The model shows the quotient of  $2\frac{1}{2} \div \frac{1}{2}$ .



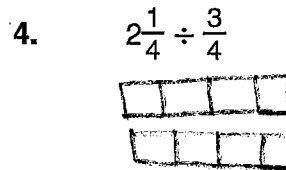
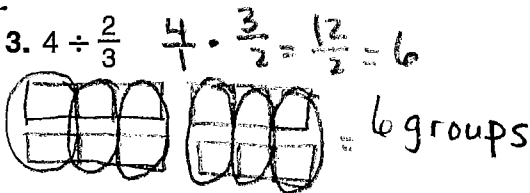
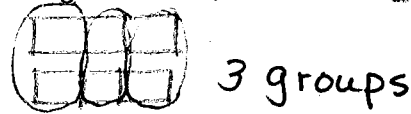
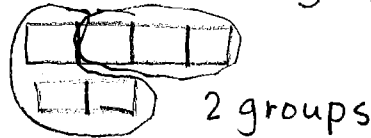
There are 5 halves in  $2\frac{1}{2}$ , so  $2\frac{1}{2} \div \frac{1}{2} = 5$ .

Draw a model to solve each division problem.

1.  $1\frac{1}{2} \div \frac{3}{4}$       $\frac{3}{2} \cdot \frac{4}{3} = \frac{12}{6} = 2$

2.  $2 \div \frac{2}{3}$       $\frac{2}{1} \times \frac{3}{2} = \frac{6}{2} = 3$

How many groups of  $\frac{3}{4}$  can be made from  $1\frac{1}{2}$ ?



**Think and Discuss**

5. **Describe** how to model fraction division by using fraction bars.

First model the first number; Then put into groups according to the second fraction. How many equal groups can you make?

6. **Explain** why  $3 \div \frac{3}{4} = 4$ .

