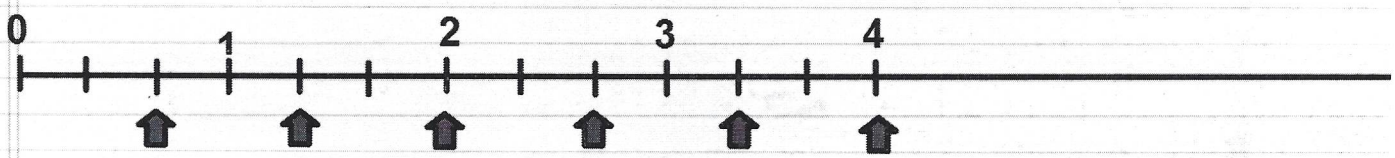
Chapter 2	Fractions and Decimals
Date:	2.2 Dividing Fractions
Essential Question	How can you divide by a fraction?

A scoop holds $\frac{2}{3}$ cup. How many scoops of birdseed are needed to fill a bird feeder that holds 4 cups of birdseed?

1) Draw a picture to find out how many scoops are needed.

A scoop holds $\frac{2}{3}$ cup. How many scoops of birdseed are needed to fill a bird feeder that holds 4 cups of birdseed?

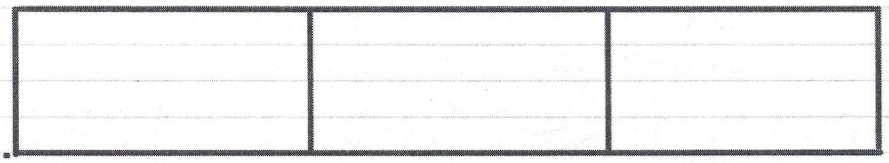


6 scoops are needed.

2) A piece of wood is 3 feet long. How many 3/4 ft. pieces can be cut from the piece of wood?

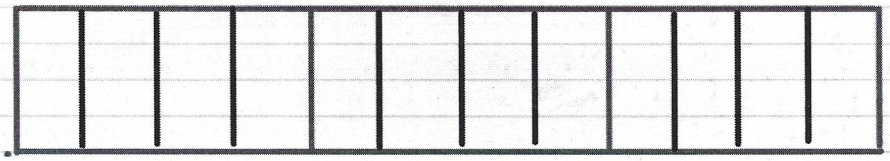
Draw a picture of this problem.

2) A piece of wood is 3 feet long. How many 3/4 ft. pieces can be cut from the piece of wood?



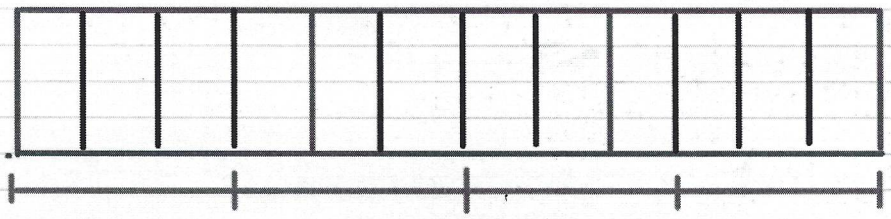
Draw a 3 foot long board and divide it into three one-foot sections.

2) A piece of wood is 3 feet long. How many 3/4 ft. pieces can be cut from the piece of wood?



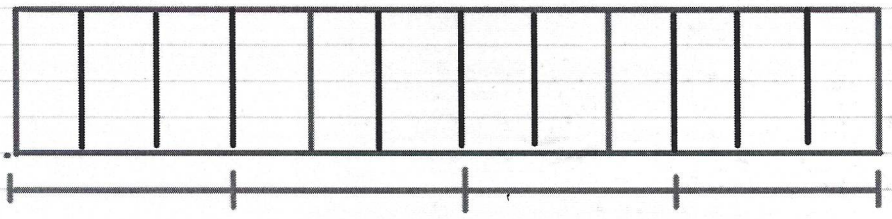
Divide each foot into 4 equal parts.

2) A piece of wood is 3 feet long. How many 3/4 ft. pieces can be cut from the piece of wood?



Mark off as many 3/4 foot sections as you can.

2) A piece of wood is 3 feet long. How many 3/4 ft. pieces can be cut from the piece of wood?



Mark off as many 3/4 foot sections as you can.

Answer: You can cut four 3/4 ft. pieces from a three foot long piece of wood.

Chapter 2	Fractions and Decimals
Date:	2.2 Dividing Fractions
Essential Question	How can you divide by a fraction?
Vocabulary	<u>Reciprocals</u> are 2 numbers whose product is 1. To write a reciprocal, write the number as a fraction. Then, invert, or flip, the fraction.

$\frac{5}{8}$ **becomes** $\frac{8}{5}$

What happens when we multiply a number by its reciprocal?

$$\frac{5}{8} \times \frac{8}{5} = \frac{40}{40} = 1$$

$\frac{5}{8}$ and $\frac{8}{5}$ are reciprocals because their product is 1.

Write the reciprocals for the next few problems in your composition book.

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

4) $\frac{8}{5} = \frac{5}{8}$

5) $\frac{1}{6} = \frac{6}{1} = 6$

6) $5 = \frac{1}{5}$

Practice writing the following reciprocals on your note page.

1) $2 = 1/2$

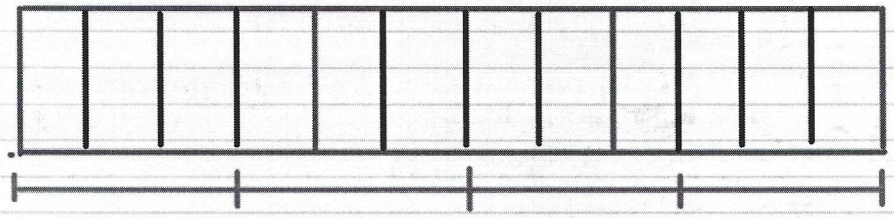
2) $9/5 = 5/9$

3) $1/8 = 8/1 = 8$

4) $3/5 = 5/3 = 1\ 2/3$

How can you use reciprocals when dividing fractions?

A piece of wood is 3 feet long. How many 3/4 ft. pieces can be cut from the piece of wood?



Mark off as many 3/4 foot sections as you can.

You can cut four 3/4 ft. pieces from a three foot long piece of wood.

You took 3 feet and divided it into 3/4 ft. sections and got 4.

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

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

How can you use reciprocals when dividing fractions?

Any thoughts?

On your notes page, write the following steps down. Then, solve the example.

1) keep
2) change
3) flip

Example:

keep change flip

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

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

$\frac{\cancel{3}^{1}}{1} \times \frac{4}{\cancel{3}_{1}} = 4$

Complete the next few problems in your composition book.

7) $1/6 \div 2/3$

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

$$\frac{1}{\cancel{6}_{2}} \times \frac{\cancel{3}^{1}}{2} = \frac{1}{4}$$

8) $14/27 \div 7$

$$\frac{14}{27} \div 7$$

$$\frac{\cancel{14}^{2}}{27} \times \frac{1}{\cancel{7}_{1}} = \frac{2}{27}$$

Complete numbers 5-7 on your notes page.

5) $\frac{2}{7} \div \frac{1}{3}$

$\frac{2}{7} \times \frac{3}{1}$

$\frac{2}{7} \times \frac{3}{1}$

$\frac{6}{7}$

6) $\frac{1}{2} \div \frac{1}{8}$

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

$\frac{1}{\cancel{2}_1} \times \frac{\cancel{8}^4}{1}$

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

7) $\frac{1}{4} \div \frac{3}{10}$

$\frac{1}{4} \times \frac{10}{3}$

$\frac{1}{\cancel{4}_2} \times \frac{\cancel{10}^5}{3}$

$\frac{5}{6}$

9) A scoop holds $\frac{2}{3}$ cup. How many scoops of birdseed are needed to fill a bird feeder that holds 4 cups of birdseed?

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

$$\frac{\cancel{4}^{2}}{1} \times \frac{3}{\cancel{2}_{1}} = \frac{6}{1} = 6 \text{ scoops}$$

Complete the next few problems in your composition book.

10) $6 \div \frac{1}{4}$

$\frac{6}{1} \times \frac{4}{1}$

$\frac{24}{1} = 24$

11) $15 \div \frac{3}{5}$

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

$\frac{\cancel{15}^{5}}{1} \times \frac{5}{\cancel{3}_{1}}$

$\frac{25}{1} = 25$

Complete the next few problems in your composition book.

12) $\frac{8}{9} \div 6$

$\frac{\cancel{8}^{4}}{9} \times \frac{1}{\cancel{6}_{3}}$

$\frac{4}{27}$

13) $\frac{6}{7} \div 15$

$\frac{6}{7} \times \frac{1}{15}$

$\frac{\cancel{6}^{2}}{7} \times \frac{1}{\cancel{15}_{5}}$

$\frac{2}{35}$

Complete numbers 8 - 12 on your notes page.

8) $\frac{2}{3} \div 10$

$\frac{2}{3} \div \frac{10}{1}$

$\frac{2}{3} \times \frac{1}{10}$

$\frac{\cancel{2}^{1}}{3} \times \frac{1}{\cancel{10}_{5}}$

$\frac{1}{15}$

9) $\frac{6}{7} \div 4$

$\frac{6}{7} \div \frac{4}{1}$

$\frac{6}{7} \times \frac{1}{4}$

$\frac{\cancel{6}^{3}}{7} \times \frac{1}{\cancel{4}_{2}}$

$\frac{3}{14}$

Complete numbers 8 - 12 on your notes page.

10) $5 \div \frac{3}{4}$

$\frac{5}{1} \times \frac{4}{3}$

$\frac{5}{1} \times \frac{4}{3}$

$\frac{20}{3} = 6\frac{2}{3}$

11) $8 \div \frac{6}{10}$

$\frac{8}{1} \times \frac{10}{6}$

$\frac{\cancel{8}^{4}}{1} \times \frac{10}{\cancel{6}_{3}}$

$\frac{40}{3} = 13\frac{1}{3}$

12) Mrs. Smith bought a 20 cup bag of trail mix. She put 5/6 of a cup into each ziplock bag for her kids' school lunches. How many ziplock bags of trail mix will she be able to make?

$$20 \div \frac{5}{6}$$

$$\frac{20}{1} \div \frac{5}{6}$$

$$\frac{\overset{4}{\cancel{20}}}{1} \times \frac{6}{\underset{1}{\cancel{5}}}$$

$$\frac{24}{1} = 24$$

Mrs. Smith can make 24 ziplock bags of trail mix.