

Student Edition

Eureka Math

Grade 5

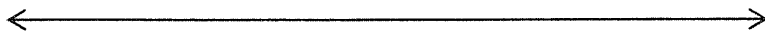
Module 4

Special thanks go to the Gordon A. Cain Center and to the Department of Mathematics at Louisiana State University for their support in the development of *Eureka Math*.

Name _____

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A meteorologist set up rain gauges at various locations around a city and recorded the rainfall amounts in the table below. Use the data in the table to create a line plot using $\frac{1}{8}$ inches.



- Which location received the most rainfall?
- Which location received the least rainfall?
- Which rainfall measurement was the most frequent?
- What is the total rainfall in inches?

Location	Rainfall Amount (inches)
1	$\frac{1}{8}$
2	$\frac{3}{8}$
3	$\frac{3}{4}$
4	$\frac{3}{4}$
5	$\frac{1}{4}$
6	$1\frac{1}{4}$
7	$\frac{1}{8}$
8	$\frac{1}{4}$
9	1
10	$\frac{1}{8}$

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1. Draw a picture to show the division. Express your answer as a fraction.

a. $1 \div 4$

b. $3 \div 5$

c. $7 \div 4$

2. Using a picture, show how six people could share four sandwiches. Then, write an equation and solve.

3. Fill in the blanks to make true number sentences.

a. $2 \div 7 = \underline{\quad}$

b. $39 \div 5 = \underline{\quad}$

c. $13 \div 3 = \underline{\quad}$

d. $\frac{9}{5} = \underline{\quad} \div \underline{\quad}$

e. $\frac{19}{28} = \underline{\quad} \div \underline{\quad}$

f. $1\frac{3}{5} = \underline{\quad} \div \underline{\quad}$

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1. Fill in the chart. The first one is done for you.

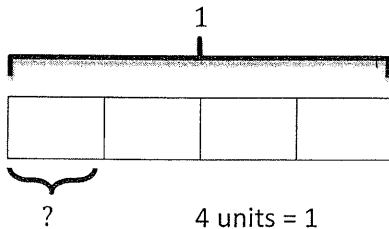
Division Expression	Unit Forms	Improper Fractions	Mixed Numbers	Standard Algorithm (Write your answer in whole numbers and fractional units. Then check.)
a. $4 \div 3$	12 thirds $\div 3$ = 4 thirds	$\frac{4}{3}$	$1\frac{1}{3}$	$ \begin{array}{r} 1\frac{1}{3} \\ 3 \overline{) 4} \\ \underline{-3} \\ 1 \end{array} $ <p style="text-align: right;">Check</p> $ \begin{aligned} 3 \times 1\frac{1}{3} &= 1\frac{1}{3} + 1\frac{1}{3} + 1\frac{1}{3} \\ &= 3 + \frac{3}{3} \\ &= 3 + 1 \\ &= 4 \end{aligned} $
b. $___ \div ___$	$___$ fifths $\div 5$ = $___$ fifths		$1\frac{2}{5}$	
c. $___ \div ___$	$___$ halves $\div 2$ = $___$ halves			$2 \overline{) 7}$
d. $7 \div 4$		$\frac{7}{4}$		

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1. Draw a tape diagram to solve. Express your answer as a fraction. Show the addition sentence to support your answer. The first one is done for you.

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



$$1 \text{ unit} = 1 \div 4$$

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

Check:

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

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

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

$$= 1$$

$$4 \overline{) 1} \frac{1}{4}$$

$$\begin{array}{r} 0 \frac{1}{4} \\ 4 \overline{) 1} \\ \underline{- 0} \\ 1 \end{array}$$

b. $4 \div 5 = \underline{\quad}$

c. $8 \div 5 = \underline{\quad}$

d. $14 \div 3 = \underline{\quad}$

2. Fill in the chart. The first one is done for you.

Division Expression	Fraction	Between which two whole numbers is your answer?	Standard Algorithm
a. $16 \div 5$	$\frac{16}{5}$	3 and 4	$ \begin{array}{r} 3 \frac{1}{5} \\ 5 \overline{) 16} \\ \underline{-15} \\ 1 \end{array} $
b. $\underline{\quad} \div \underline{\quad}$	$\frac{3}{4}$	0 and 1	$ \begin{array}{r} \\ \overline{) 3} \\ \end{array} $
c. $\underline{\quad} \div \underline{\quad}$	$\frac{7}{2}$		$ \begin{array}{r} 3 \\ 2 \overline{) 7} \\ \end{array} $
d. $\underline{\quad} \div \underline{\quad}$	$\frac{81}{90}$		$ \begin{array}{r} \\ \overline{) 81} \\ \end{array} $

3. Jackie cut a 2-yard spool into 5 equal lengths of ribbon.
- What is the length of each ribbon in yards? Draw a tape diagram to show your thinking.

 - What is the length of each ribbon in feet? Draw a tape diagram to show your thinking.
4. Baa Baa, the black sheep, had 7 pounds of wool. If he separated the wool equally into 3 bags, how much wool would be in 2 bags?
5. An adult sweater is made from 2 pounds of wool. This is 3 times as much wool as it takes to make a baby sweater. How much wool does it take to make a baby sweater? Use a tape diagram to solve.

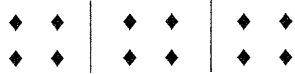
2. Craig bought a 3-foot-long baguette and then made 4 equally sized sandwiches with it.
- What portion of the baguette was used for each sandwich? Draw a visual model to help you solve this problem.
 - How long, in feet, is one of Craig's sandwiches?
 - How many inches long is one of Craig's sandwiches?
3. Scott has 6 days to save enough money for a \$45 concert ticket. If he saves the same amount each day, what is the minimum amount he must save each day in order to reach his goal? Express your answer in dollars.

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1. Find the value of each of the following.

a.

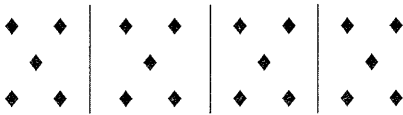


$$\frac{1}{3} \text{ of } 12 =$$

$$\frac{2}{3} \text{ of } 12 =$$

$$\frac{3}{3} \text{ of } 12 =$$

b.



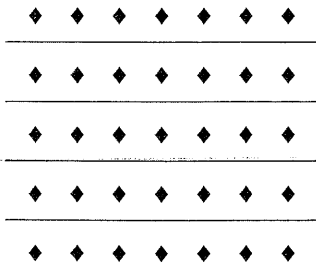
$$\frac{1}{4} \text{ of } 20 =$$

$$\frac{3}{4} \text{ of } 20 =$$

$$\frac{2}{4} \text{ of } 20 =$$

$$\frac{4}{4} \text{ of } 20 =$$

c.



$$\frac{1}{5} \text{ of } 35 =$$

$$\frac{3}{5} \text{ of } 35 =$$

$$\frac{5}{5} \text{ of } 35 =$$

$$\frac{2}{5} \text{ of } 35 =$$

$$\frac{4}{5} \text{ of } 35 =$$

$$\frac{6}{5} \text{ of } 35 =$$

2. Find $\frac{2}{3}$ of 18. Draw a set and shade to show your thinking.
3. How does knowing $\frac{1}{5}$ of 10 help you find $\frac{3}{5}$ of 10? Draw a picture to explain your thinking.
4. Sara just turned 18 years old. She spent $\frac{4}{9}$ of her life living in Rochester, NY. How many years did Sara live in Rochester?
5. A farmer collected 12 dozen eggs from her chickens. She sold $\frac{5}{6}$ of the eggs at the farmers' market and gave the rest to friends and neighbors.
- a. How many dozen eggs did the farmer give away? How many eggs did she give away?
- b. She sold each dozen for \$4.50. How much did she earn from the eggs she sold?

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1. Solve using a tape diagram.

a. $\frac{1}{4}$ of 24

b. $\frac{1}{4}$ of 48

c. $\frac{2}{3} \times 18$

d. $\frac{2}{6} \times 18$

e. $\frac{3}{7} \times 49$

f. $\frac{3}{10} \times 120$

g. $\frac{1}{3} \times 31$

h. $\frac{2}{5} \times 20$

i. $\frac{1}{4} \times 25$

j. $\frac{3}{4} \times 25$

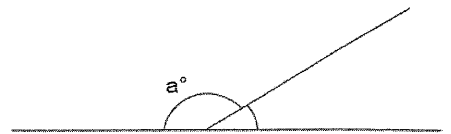
k. $\frac{3}{4}$ of a number is 27. What's the number?

l. $\frac{2}{5}$ of a number is 14. What's the number?

2. Solve using tape diagrams.

- a. A skating rink sold 66 tickets. Of these, $\frac{2}{3}$ were children's tickets, and the rest were adult tickets. What total number of adult tickets were sold?

- b. A straight angle is split into two smaller angles as shown. The smaller angle's measure is $\frac{1}{6}$ that of a straight angle. What is the value of angle a ?



- c. Annabel and Eric made 17 ounces of pizza dough. They used $\frac{5}{8}$ of the dough to make a pizza and used the rest to make calzones. What is the difference between the amount of dough they used to make pizza and the amount of dough they used to make calzones?
- d. The New York Rangers hockey team won $\frac{3}{4}$ of their games last season. If they lost 21 games, how many games did they play in the entire season?

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1. Rewrite the following expressions as shown in the example.

Example: $\frac{2}{3} + \frac{2}{3} + \frac{2}{3} + \frac{2}{3} = \frac{4 \times 2}{3} = \frac{8}{3}$

a. $\frac{5}{3} + \frac{5}{3} + \frac{5}{3}$

b. $\frac{13}{5} + \frac{13}{5}$

c. $\frac{9}{4} + \frac{9}{4} + \frac{9}{4}$

2. Solve each problem in two different ways as modeled in the example.

Example: $\frac{2}{3} \times 6 = \frac{2 \times 6}{3} = \frac{12}{3} = 4$ $\frac{2}{3} \times 6 = \frac{2 \times \cancel{6}^2}{\cancel{3}_1} = 4$

a. $\frac{3}{4} \times 16$

$\frac{3}{4} \times 16$

b. $\frac{4}{3} \times 12$

$\frac{4}{3} \times 12$

c. $40 \times \frac{11}{10}$

$40 \times \frac{11}{10}$

d. $\frac{7}{6} \times 36$

$\frac{7}{6} \times 36$

e. $24 \times \frac{5}{8}$

$24 \times \frac{5}{8}$

f. $18 \times \frac{5}{12}$

$18 \times \frac{5}{12}$

g. $\frac{10}{9} \times 21$

$\frac{10}{9} \times 21$

3. Solve each problem any way you choose.

a. $\frac{1}{3} \times 60$

$\frac{1}{3}$ minute = _____ seconds

b. $\frac{4}{5} \times 60$

$\frac{4}{5}$ hour = _____ minutes

c. $\frac{7}{10} \times 1000$

$\frac{7}{10}$ kilogram = _____ grams

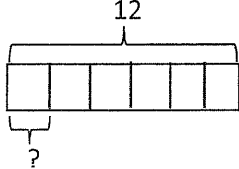
d. $\frac{3}{5} \times 100$

$\frac{3}{5}$ meter = _____ centimeters

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1. Convert. Show your work using a tape diagram or an equation. The first one is done for you.

<p>a. $\frac{1}{4}$ yard = <u>9</u> inches</p> $\frac{1}{4} \text{ yard} = \frac{1}{4} \times 1 \text{ yard}$ $= \frac{1}{4} \times 36 \text{ inches}$ $= \frac{36}{4} \text{ inches}$ $= 9 \text{ inches}$	<p>b. $\frac{1}{6}$ foot = _____ inches</p> $\frac{1}{6} \text{ foot} = \frac{1}{6} \times 1 \text{ foot}$ $= \frac{1}{6} \times 12 \text{ inches}$ $=$ 
<p>c. $\frac{3}{4}$ year = _____ months</p>	<p>d. $\frac{3}{5}$ meter = _____ centimeters</p>
<p>e. $\frac{5}{12}$ hour = _____ minutes</p>	<p>f. $\frac{2}{3}$ yard = _____ inches</p>

2. Michelle measured the length of her forearm. It was $\frac{3}{4}$ of a foot. How long is her forearm in inches?

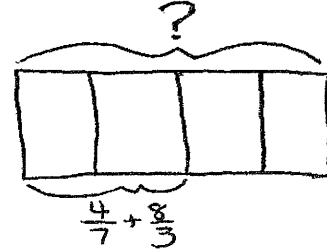
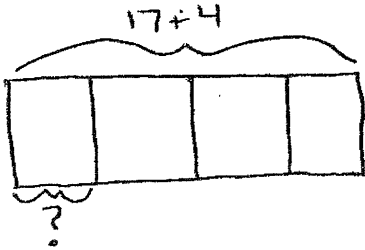
3. At the market, Ms. Winn bought $\frac{3}{4}$ lb of grapes and $\frac{5}{8}$ lb of cherries.
- How many ounces of grapes did Ms. Winn buy?
 - How many ounces of cherries did Ms. Winn buy?
 - How many more ounces of grapes than cherries did Ms. Winn buy?
 - If Mr. Phillips bought $1\frac{3}{4}$ pounds of raspberries, who bought more fruit, Ms. Winn or Mr. Phillips? How many ounces more?
4. A gardener has 10 pounds of soil. He used $\frac{5}{8}$ of the soil for his garden. How many pounds of soil did he use in the garden? How many pounds did he have left?

- c. In June, she bought $\frac{1}{8}$ pound less than three times as much as she bought in May.
- d. Display the data from the table in a line plot.
- e. How many pounds of flour did Fantine buy from January to October?

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1. Write expressions to match the diagrams. Then, evaluate.



2. Circle the expression(s) that give the same product as $6 \times \frac{3}{8}$. Explain how you know.

$8 \div (3 \times 6)$

$3 \div 8 \times 6$

$(6 \times 3) \div 8$

$(8 \div 6) \times 3$

$6 \times \frac{8}{3}$

$\frac{3}{8} \times 6$

3. Write an expression to match, and then evaluate.

a. $\frac{1}{8}$ the sum of 23 and 17

b. Subtract 4 from $\frac{1}{6}$ of 42.

c. 7 times as much as the sum of $\frac{1}{3}$ and $\frac{4}{5}$

d. $\frac{2}{3}$ of the product of $\frac{3}{8}$ and 16

e. 7 copies of the sum of 8 fifths and 4

f. 15 times as much as 1 fifth of 12