EUREKA MATH™ TIPS FOR PARENTS

KEY CONCEPT OVERVIEW

In Lesson 1, students work with measurement and fractions. They measure the length of pencils to the nearest half, quarter, and eighth of an inch, and then they use the data to create a **line plot**.

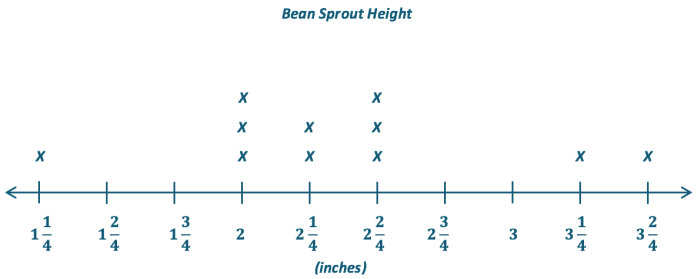
You can expect to see homework that asks your child to do the following:

- Create a line plot by using a given set of data with $\frac{1}{8}$-inch intervals.
- Answer questions based on the line plot (as shown in the Sample Problem below).

SAMPLE PROBLEM *(From Lesson 1)*

A group of students measured the height of bean sprouts to the nearest quarter inch. Draw a line plot to represent their data:

$$2\frac{1}{2},\ 1\frac{1}{4},\ 2,\ 3\frac{1}{2},\ 2\frac{1}{4},\ 2,\ 2\frac{1}{2},\ 2,\ 2\frac{1}{2},\ 2\frac{1}{4},\ 3\frac{1}{4}$$



a. Which bean sprout is the tallest?

The $3\frac{1}{2}$-inch bean sprout is the tallest.

b. Which bean sprout is the shortest?

The $1\frac{1}{4}$-inch bean sprout is the shortest.

c. Which measurement(s) occur(s) most frequently?

The measurements that occur most frequently are 2 inches and $2\frac{1}{2}$ inches.

d. What is the total height of all the bean sprouts?

The total height of all the bean sprouts is 26 inches.

Additional sample problems with detailed answer steps are found in the *Eureka Math Homework Helpers* books. Learn more at GreatMinds.org.

HOW YOU CAN HELP AT HOME

- When preparing food or cooking in the kitchen, find opportunities for your child to use an inch ruler to measure the length of vegetables (e.g., carrots, celery, asparagus) to the nearest half, quarter, or eighth of an inch.
- Play the Compare Fractions card game with your child.
    1. Take out the jacks, queens, kings, and jokers. Let aces have a value of one.
    2. Put the stack of remaining cards facedown.
    3. You flip two cards to represent a fraction.
    4. Your child flips two cards to represent another fraction.
    5. Both you and your child arrange each pair of cards as a fraction, using the smaller number as the **numerator** and the larger number as the **denominator**.
    6. You write the two fractions, and ask your child to compare them.

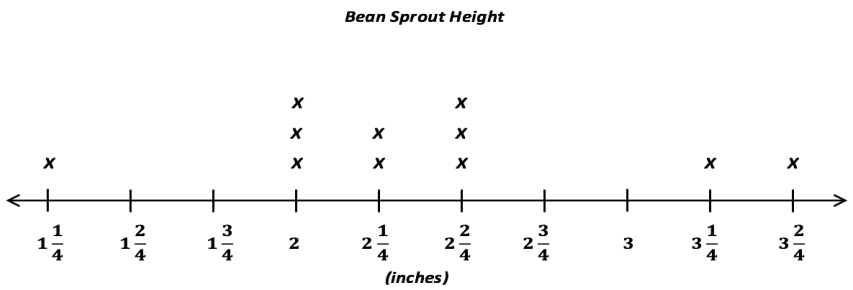
For example, you flip the numbers 1 and 3. They represent the fraction $\frac{1}{3}$. Your child flips the numbers 5 and 2. They represent the fraction $\frac{2}{5}$. You write $\frac{1}{3}$ ____ $\frac{2}{5}$. He writes $\frac{1}{3} < \frac{2}{5}$.

TERMS

Denominator: Denotes the fractional unit (i.e., the bottom number in a fraction). For example, *fifths* in three-fifths, as represented by the 5 in $\frac{3}{5}$, is the denominator.
Numerator: Denotes the count of fractional units (i.e., the top number in a fraction). For example, *three* in three-fifths, as represented by the 3 in $\frac{3}{5}$, is the numerator.

MODELS

Line Plot



EUREKA MATH™ TIPS FOR PARENTS

KEY CONCEPT OVERVIEW

In Lessons 2 through 5, students learn how fractions can be interpreted as division **expressions**.

You can expect to see homework that asks your child to do the following:

- Draw pictures and use **tape diagrams** to model fractions as division and then solve.
- Express a fraction as division in different forms. (See Sample Problem below.)
- Solve word problems involving the division of whole numbers.

SAMPLE PROBLEM *(From Lesson 3)*

Fill in the chart.

Division Expression	Unit Form	Improper Fraction	Mixed Number	Standard Algorithm (Write your answer in whole numbers and fractional units. Then check.)
$3 \div 2$	6 halves ÷ 2 = 3 halves	$\frac{3}{2}$	$1\frac{1}{2}$	$2\overline{)3}$ → $1\frac{1}{2}$, -2, 1 Check $2 \times 1\frac{1}{2} = 1\frac{1}{2} + 1\frac{1}{2}$ $= 2 + \frac{2}{2}$ $= 3$

Additional sample problems with detailed answer steps are found in the *Eureka Math Homework Helpers* books. Learn more at GreatMinds.org.

HOW YOU CAN HELP AT HOME

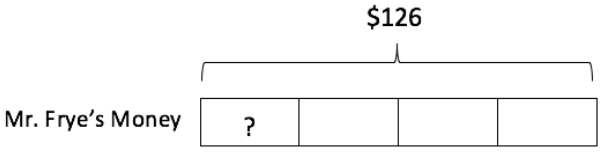
- When serving pancakes or waffles, ask your child to explain how he could split them evenly among those eating breakfast. For example,
  - 2 pancakes are ready, and there are 4 family members. How many pancakes will each person get? (Each person will get $\frac{2}{4}$, or $\frac{1}{2}$, of a pancake.)
  - Now 5 pancakes are ready. How will you split those pancakes equally among four family members? (Each person will get $1\frac{1}{4}$ pancakes.)

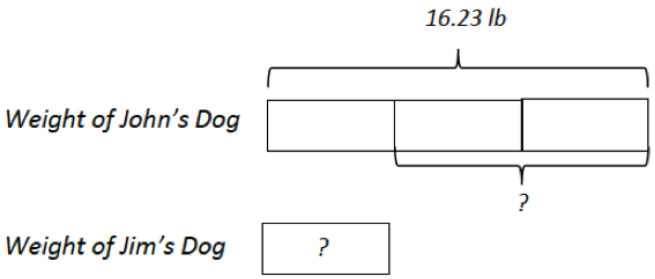
TERMS

Expression: Any combination of sums, differences, products, or divisions of numbers that evaluates to a number. Expressions do not have an equal sign (e.g., $600 + 3 + 0.07$).
Improper fraction: The numerator of a fraction is greater than the denominator of the fraction (e.g., $\frac{5}{2}$).
Mixed number: A number made up of a whole number and a fraction (e.g., $13\frac{42}{100}$).
Standard algorithm: A standard step-by-step procedure to solve a particular type of problem. For example, the process of long division is a standard algorithm.
Unit form: A number expressed in terms of its units. For example, the number 0.863 written in unit form is 8 tenths 6 hundredths 3 thousandths.

MODELS

Tape Diagram





EUREKA MATH™ TIPS FOR PARENTS

KEY CONCEPT OVERVIEW

In Lessons 6 through 9, students learn to multiply a fraction by a whole number.

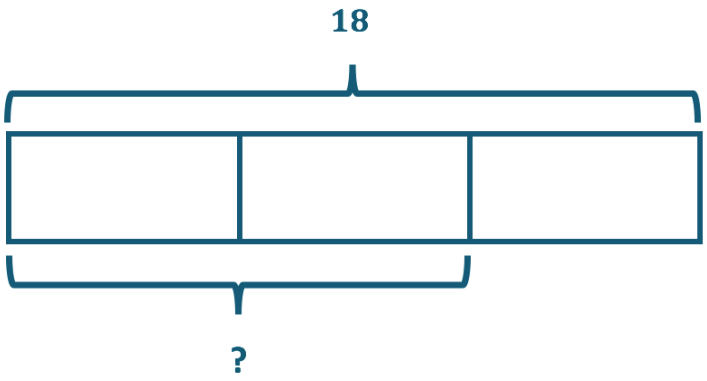
You can expect to see homework that asks your child to do the following:

- Draw a picture and a tape diagram to represent multiplication of a fraction by a whole number, and then solve.
- Solve measurement conversion problems.
- Solve word problems that involve multiplying a fraction by a whole number and finding a fraction of a measurement.

SAMPLE PROBLEM *(From Lesson 7)*

Solve by using a tape diagram.

$\frac{2}{3}$ of 18



3 units = 18

1 unit = $18 \div 3 = \frac{18}{3} = 6$

2 units = $2 \times 6 = 12$

Additional sample problems with detailed answer steps are found in the *Eureka Math Homework Helpers* books. Learn more at GreatMinds.org.

HOW YOU CAN HELP AT HOME

- Use fruits or vegetables to illustrate fractions. If necessary, help your child put the fruits or vegetables into equal groups and then count them. Some examples include the following:
  - There are 18 strawberries in a box. What is $\frac{1}{3}$ of 18 strawberries? (6 strawberries)
  - There are 25 blueberries in a box. What is $\frac{3}{5}$ of 25 blueberries? (15 blueberries)
  - There are 30 grape tomatoes in a box. What is $\frac{5}{6}$ of 30 grape tomatoes? (25 grape tomatoes)

- Play the Fraction Multiplication card game with your child.
  1. Take out the jacks, queens, kings, aces, and jokers.
  2. Put the stack of remaining cards facedown.
  3. Flip two cards to represent a fraction. Use the smaller number as the numerator and the larger number as the denominator.
  4. Have your child flip one card to represent a whole number.
  5. Write the multiplication expression of the fraction times the whole number, and ask your child to solve.

  For example, you flip the numbers 3 and 5. They represent the fraction $\frac{3}{5}$. Your child flips the number 7. You write $\frac{3}{5} \times 7$. He writes $\frac{3}{5} \times 7 = \frac{3 \times 7}{5} = \frac{21}{5} = 4\frac{1}{5}$.

EUREKA MATH™ TIPS FOR PARENTS

KEY CONCEPT OVERVIEW

In Lessons 10 through 12, students learn to write and evaluate numerical expressions.

You can expect to see homework that asks your child to do the following:

- Write expressions that match given diagrams, and then evaluate them.
- Compare number sentences by using less than (<), greater than (>), or equal to (=) without calculating.
- Create and solve story problems with fractions by using a given tape diagram or expression.
- Solve word problems involving addition, subtraction, and multiplication.

SAMPLE PROBLEM *(From Lesson 10)*

Write an expression to match, and then evaluate.

3 times as much as the sum of $\frac{2}{5}$ and $\frac{1}{2}$.

$$3 \times \left(\frac{2}{5} + \frac{1}{2}\right)$$
$$= 3 \times \left(\frac{4}{10} + \frac{5}{10}\right)$$
$$= 3 \times \frac{9}{10}$$
$$= \frac{27}{10}$$
$$= 2\frac{7}{10}$$

Additional sample problems with detailed answer steps are found in the *Eureka Math Homework Helpers* books. Learn more at GreatMinds.org.

HOW YOU CAN HELP AT HOME

- Review fraction addition, subtraction, and multiplication with your child. Ask your child to pick one of each of these types of fraction problems from his previous work and explain how he solved each problem.

- Ask your child to write out a descriptive sentence for an expression containing fractions, such as $3\times\left(\frac{3}{4}+\frac{4}{6}\right)$.
  (Answer: Three times the sum of $\frac{3}{4}$ and $\frac{4}{6}$.)

EUREKA MATH™ TIPS FOR PARENTS

KEY CONCEPT OVERVIEW

In Lessons 13 through 20, students learn to multiply a fraction by a fraction. They also learn to multiply a decimal by a decimal by using models. Students use rectangular fraction models, tape diagrams, and standard algorithms to help show their thinking.

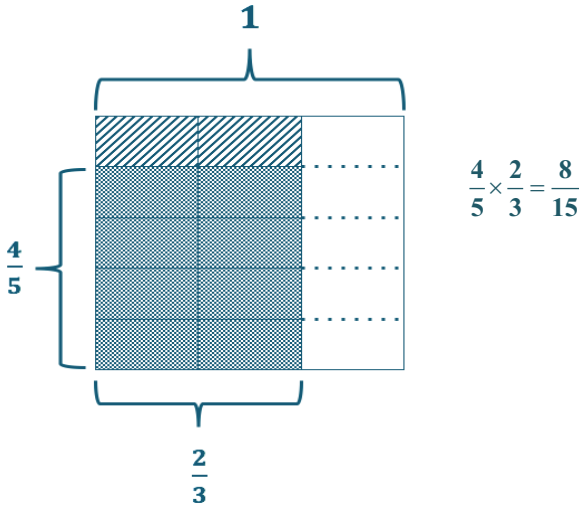
You can expect to see homework that asks your child to do the following:

- Solve fraction multiplication problems, and draw rectangular fraction models.
- Solve decimal multiplication problems.
- Solve measurement conversion problems.
- Solve multi-step word problems involving multiplication of a fraction by a fraction.

SAMPLE PROBLEM *(From Lesson 15)*

Solve. Draw a rectangular fraction model to explain your thinking. Then write a multiplication sentence.

$\frac{4}{5}$ of $\frac{2}{3}$



Additional sample problems with detailed answer steps are found in the *Eureka Math Homework Helpers* books. Learn more at GreatMinds.org.

HOW YOU CAN HELP AT HOME

- Play the Decimals and Fractions card game with your child to review writing decimals as fractions.
    1. Take out the jacks, queens, kings, and jokers.
    2. Put the stack of remaining cards facedown.
    3. Have your child flip over one, two, or three cards to represent a decimal number, as described in the examples below. Write the decimal number, and ask her to write the equivalent fraction.

  For example:
  She can flip one card to represent tenths. If she flips the number 3, you write the decimal number 0.3. She then writes the fraction $\frac{3}{10}$.

  She can flip two cards to represent hundredths. The numbers 2 and 5 represent the decimal number 0.25. The fraction is $\frac{25}{100}$.

  She can flip three cards to represent thousandths. The numbers 1, 6, and 1 represent the decimal number 0.161. The fraction is $\frac{161}{1,000}$.

EUREKA MATH™ TIPS FOR PARENTS

KEY CONCEPT OVERVIEW

In Lessons 21 through 24, students work with fraction multiplication and compare the size of the product with the size of the factors. They also apply their understanding to real-world multi-step problems.

You can expect to see homework that asks your child to do the following:

- Write fractions as equivalent decimals (as shown in the Sample Problem below).
- Fill in the unknown number in an inequality expression.
- Solve word problems involving multiplication of fractions and decimals.

SAMPLE PROBLEM *(From Lesson 21)*

Express the fraction as an equivalent decimal.

$$\frac{13}{20} \times \frac{5}{5} = \frac{13 \times 5}{20 \times 5} = \frac{65}{100} = 0.65$$

Additional sample problems with detailed answer steps are found in the *Eureka Math Homework Helpers* books. Learn more at GreatMinds.org.

HOW YOU CAN HELP AT HOME

- At the dinner table or on the go, have your child practice writing amounts of money less than one dollar as fractions and decimals. For example:

  7 cents = $\frac{7}{100}$ dollar = \$0.07

  25 cents = $\frac{25}{100}$ dollar = \$0.25

  89 cents = $\frac{89}{100}$ dollar = \$0.89

  Try to stump each other!

- Play the Compare the Decimals card game with your child.

  1. Take out the jacks, queens, kings, and jokers.
  2. Put the stack of remaining cards facedown.
  3. Flip one, two, or three cards to represent a decimal number, as described below.
  4. Have your child flip the same number of cards that you flipped to represent another decimal number.
  5. Write the two decimal numbers and ask her to compare them.

  For example, flip one card to represent tenths. You flip the number 1. It represents the decimal number 0.1. Your child flips the number 9. It represents the decimal number 0.9. You write 0.1 ____ 0.9. She writes $0.1 < 0.9$.

  NOTE:

  Flip two cards to represent hundredths (e.g., the numbers 6 and 5 represent the decimal number 0.65).

  Flip three cards to represent thousandths (e.g., the numbers 3, 7, and 8 represent the decimal number 0.378).

  Flip four cards to represent ones and thousandths (e.g., the numbers 6, 2, 4, and 5 represent the number 6.245).

EUREKA MATH™ TIPS FOR PARENTS

KEY CONCEPT OVERVIEW

In Lessons 25 through 31, students learn to divide fractions and decimals. They use tape diagrams and number lines to help them solve problems. They also apply their skills in real-world contexts.

You can expect to see homework that asks your child to do the following:

- Solve division problems involving fractions and decimals by drawing tape diagrams and number lines.
- Estimate the value of a decimal divided by a decimal, and then solve.
- Create and solve division word problems that are modeled by a tape diagram or an expression.

SAMPLE PROBLEM *(From Lesson 30)*

Rewrite the division expression as a fraction and then divide.

$1.6 \div 0.04$

$$= \frac{1.6}{0.04}$$
$$= \frac{1.6}{0.04} \times \frac{100}{100}$$
$$= \frac{160}{4}$$
$$= 40$$

Additional sample problems with detailed answer steps are found in the *Eureka Math Homework Helpers* books. Learn more at GreatMinds.org.

HOW YOU CAN HELP AT HOME

- Practice skip-counting by fractions and decimals with your child. For example,
  - Count by 2 tenths from 2 tenths to 20 tenths.

    $\frac{2}{10}, \frac{4}{10}, \frac{6}{10}, \frac{8}{10}, \frac{10}{10}, \frac{12}{10}, \frac{14}{10}, \frac{16}{10}, \frac{18}{10}, \frac{20}{10}$.

    0.2, 0.4, 0.6, 0.8, 1, 1.2, 1.4, 1.6, 1.8, 2.

  - Count by 5 tenths from 5 tenths to 50 tenths.

    $\frac{5}{10}, \frac{10}{10}, \frac{15}{10}, \frac{20}{10}, \frac{25}{10}, \frac{30}{10}, \frac{35}{10}, \frac{40}{10}, \frac{45}{10}, \frac{50}{10}$.

    0.5, 1, 1.5, 2, 2.5, 3, 3.5, 4, 4.5, 5.

- Play the Fraction Division card game with your child to practice dividing a whole number by a fraction and dividing a fraction by a whole number.
  1. Take out the jacks, queens, kings, aces, and jokers.
  2. Put the stack of remaining cards facedown.
  3. Flip a card to represent a whole number.
  4. Have your child flip a card to represent a fraction. The number flipped represents the denominator; the numerator will be 1.
  5. Write the division expression as the whole number divided by the fraction, and ask your child to solve.
  6. Play again, and let your card represent a fraction and your child's card represent a whole number.

  For example, you flip the number 4. It represents the whole number 4. Your child flips the number 9. It represents the fraction $\frac{1}{9}$. You write the division expression $4 \div \frac{1}{9}$. He writes $4 \div \frac{1}{9} = 36$. For the second round, the division expression is $\frac{1}{4} \div 9$. The answer is $\frac{1}{36}$.

EUREKA MATH™ TIPS FOR PARENTS

KEY CONCEPT OVERVIEW

In Lessons 32 and 33, students interpret and evaluate numerical expressions that involve fractions. They also apply their skills in real-world contexts.

You can expect to see homework that asks your child to do the following:

- Write and evaluate numerical expressions.
- Solve word problems involving the multiplication and division of fractions and decimals.
- Create word problems that are modeled by a tape diagram or a numerical expression.

SAMPLE PROBLEM *(From Lesson 32)*

Write an equivalent expression in numerical form.

Half as much as the difference of $2\frac{5}{6}$ and $\frac{1}{3}$.

$\left(2\frac{5}{6}-\frac{1}{3}\right)\div 2$

Additional sample problems with detailed answer steps are found in the *Eureka Math Homework Helpers* books. Learn more at GreatMinds.org.

HOW YOU CAN HELP AT HOME

- Review your child's homework with him. Choose a couple of different problems. Ask him to explain his thinking on those problems and the steps he used to work through them.

- Play the Multiply Decimals by 10, 100, and 1,000 dice game to review the multiplication of decimals with your child. Use one die to represent tenths, two dice to represent hundredths, and three dice to represent thousandths.
    1. Your child rolls the die or dice.
    2. Using the number(s) rolled, you write the multiplication expressions (×10, ×100, ×1,000) and ask her to evaluate the expressions.

  For example, your child rolls the number 5. It represents the decimal number 0.5. You write the multiplication expressions 0.5×10, 0.5×100, and $0.5 \times 1{,}000$. She evaluates them as $0.5 \times 10 = 5$, $0.5 \times 100 = 50$, and $0.5 \times 1{,}000 = 500$.

  Your child rolls the numbers 2 and 3. They represent the decimal number 0.23. The evaluated multiplication sentences will be $0.23 \times 10 = 2.3$, $0.23 \times 100 = 23$, and $0.23 \times 1{,}000 = 230$.

  Your child rolls the numbers 6, 1, and 4. They represent the decimal number 0.614. The evaluated multiplication sentences will be $0.614 \times 10 = 6.14$, $0.614 \times 100 = 61.4$, and $0.614 \times 1{,}000 = 614$.