

Lesson 3-5 – Converting Fractions to Decimals (Long Division)

Objectives:

- Students will divide positive integers from the multiplication table without remainders, as evidenced by them passing one-minute quizzes.
- Students will divide positive integers, as evidenced by them completing a warm-up worksheet where they do so.
- Students will convert fractions to decimals using long division, as evidenced by them completing a homework assignment where they do so.

Student Materials on Desk Corner:

- Homework #3-4
- Homework Checker
- Warm-up & Notes Checker

Student Materials for Class:

- Homework Log
- Binder Paper
- Pencils

Teacher Materials:

- “Minute Quiz 3-5” for each student
- “Warm-up 3-5” for each student
- “Unit Calendar” transparency
- “Homework #3-5” handout for each student

Homework:

- Finish Homework #3-5
- Continue 1 hour of ALEKS

Time	Activity
10 min	<p style="text-align: center;">MINUTE QUIZ AND ATTENDANCE</p> <p>Minute Quiz and Warm-up When the bell rings, quickly go around and put the minute quiz on each student’s desk, face down. Then, start everyone on the quiz at the same time and give everyone one minute. While students are working on the quiz, pass out the warm-ups so that students can work on them once they’re done with the minute quiz. After the minute is over, have a student collect the minute quizzes and give them to the teacher’s aide (TA) to grade.</p> <p>Attendance, Collect HW, and Warm-up Check While students work on the warm-up, take attendance and have the TA collect homework & stamp homework checkers. At the end of the allotted time, go around and stamp the students’ warm-up & notes checkers.</p>
30 min	<p style="text-align: center;">LESSON</p> <p>Put up the unit calendar transparency and show students where they are in the unit. Then, teach the lesson using the notes. Once students are finished, stamp their warm-up & notes checkers.</p>
10 min	<p style="text-align: center;">CLASSWORK</p> <p>Give students the homework assignment as their classwork. They must do problems 1, 2, 3 before they may work on ALEKS.</p>
30 min	<p style="text-align: center;">ALEKS</p> <p>When students finish their classwork, they should continue with ALEKS. Use this student work time to return graded homework.</p>

Solve the following division problems. You have exactly one minute!

$90 \div 9 =$

$110 \div 10 =$

$35 \div 7 =$

$70 \div 7 =$

$120 \div 10 =$

$72 \div 6 =$

$132 \div 11 =$

$84 \div 12 =$

$90 \div 9 =$

$80 \div 8 =$

$99 \div 11 =$

$20 \div 5 =$

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Solve the following division problems. You have exactly one minute!

$9 \div 3 =$

$27 \div 9 =$

$72 \div 9 =$

$36 \div 4 =$

$9 \div 9 =$

$35 \div 5 =$

$35 \div 7 =$

$8 \div 8 =$

$120 \div 12 =$

$9 \div 3 =$

$80 \div 8 =$

$44 \div 11 =$

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$9 \div 3 =$

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$72 \div 9 =$

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$9 \div 9 =$

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Solve the following division problems. You have exactly one minute!

$8 \div 4 =$

$24 \div 4 =$

$6 \div 3 =$

$9 \div 3 =$

$24 \div 4 =$

$88 \div 11 =$

$50 \div 5 =$

$100 \div 10 =$

$48 \div 4 =$

$12 \div 6 =$

$7 \div 1 =$

$24 \div 6 =$

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$24 \div 4 =$

$6 \div 3 =$

$9 \div 3 =$

$24 \div 4 =$

$88 \div 11 =$

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$100 \div 10 =$

$48 \div 4 =$

$12 \div 6 =$

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$24 \div 4 =$

$88 \div 11 =$

$50 \div 5 =$

$100 \div 10 =$

$48 \div 4 =$

$12 \div 6 =$

$7 \div 1 =$

$24 \div 6 =$

There are 24 cookies. Fill in the following table.

Number of People	How many cookies will each person get?	Math Sentence
3		___ ÷ ___ = ___
4		___ ÷ ___ = ___
6		___ ÷ ___ = ___
8		___ ÷ ___ = ___

Evaluate the following division problems.

1) $436 \div 2$

2) $8850 \div 6$

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Number of People	How many cookies will each person get?	Math Sentence
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Evaluate the following division problems.

1) $436 \div 2$

2) $8850 \div 6$

Introduction

Last time, we wrote fractions as decimals using equivalent base-10 fractions.

$$\text{Ex: } \frac{1}{4} = \frac{1 \cdot 25}{4 \cdot 25} = \frac{25}{100} = \boxed{0.25}$$

Today, we will write fractions as decimals using long division.

Long Division to Decimal Places

Two key points:

1. There are three division symbols: \div , $/$, and — .

$$\text{Ex: } 12 \div 3 = 4$$

$$12/3 = 4$$

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

2. We can add zeros *after* the decimal point without changing a number's value.

$$\text{Ex: } 150 = 150.00$$

So, we can convert fractions to decimals by dividing the numerator by the denominator (and adding zeros after the decimal point as needed).

$$\text{Ex: Write } \frac{1}{4} \text{ as a decimal.}$$

(Answer: 0.25)

$$\text{Ex: Write } 4\frac{3}{16} \text{ as a decimal.}$$

(Answer: 4.1875)

What if the division doesn't stop?

$$\text{Ex: Write } \frac{1}{3} \text{ as a decimal.}$$

(Answer: $0.333\dots = 0.\overline{3}$)

$$\text{Ex: Write } \frac{1}{7} \text{ as a decimal.}$$

(Answer: $0.1428\dots$ or $0.142857142857143\dots = 0.\overline{142857}$)

Write the following fractions as decimals (up to 4 decimal places) using long division.

Ex) Write $\frac{3}{16}$ as a decimal.

$$\begin{array}{r} .1875 \\ 16 \overline{) 30000} \\ \underline{-16000} \\ 14000 \\ \underline{-12800} \\ 1200 \\ \underline{-1120} \\ 80 \\ \underline{-80} \\ 0 \end{array} \rightarrow \frac{3}{16} = \boxed{0.1875}$$

1) Write $\frac{3}{50}$ as a decimal.

2) Write $\frac{1}{6}$ as a decimal.

3) Write $\frac{2}{5}$ as a decimal.

4) Write $\frac{1}{4}$ as a decimal.

5) Write $\frac{3}{7}$ as a decimal.

6) Write $\frac{1}{25}$ as a decimal.

7) Write $\frac{7}{10}$ as a decimal.

8) Write $\frac{5}{8}$ as a decimal.

9) Write $\frac{3}{50}$ as a decimal.

10) Write $\frac{7}{100}$ as a decimal.

11) Write $\frac{7}{12}$ as a decimal.