Packet 1: Fractions and Decimals

Dear Parents/Guardians,

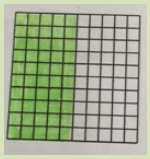
Welcome to MathLinks! This math program consists of 16 cohesive consumable packets for students aligned with the 2010 Common Core State Standards. Each packet will take about two weeks to complete.

Packet 1 builds on the work from grade 6 with conversions between fractions and terminating or repeating decimals. Students will use relationships among values, visual models, and long division to convert fractions to decimals. Encourage your student to use the strategies below if they struggle with the traditional methods or to help them think more deeply about the concepts.

Representing Fractions and Decimals with 10 ×10 Grids

Students can use 10 ×10 grids to shade in the fractional amount to determine the decimal equivalency.

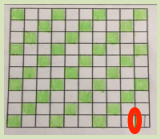
Example: Shade $\frac{1}{2}$



Students may shade in different ways, so long as 50 of the 100 cells are shaded.

$\frac{1}{2} = \frac{50}{100} = 0.50 = 0.5$

Example: Shade $\frac{1}{3}$



In this case, there are $\frac{33}{100}$ cells shaded in, plus $\frac{1}{3}$ of a hundredth.

$\frac{1}{3} = 0.33...$ or $0.\overline{33}$

By the end of the packet, your student should know…

How to convert between fractions and terminating decimals Lesson 1.1

How to convert between fractions and repeating decimals Lesson 1.2

How to compare and order fractions and decimals Lesson 1.3

Additional Resources

Resource Guide (RG)
Part 1, Pages 26-30
(For additional strategies)

Use Unit Fractions and Fractional Relationships

A unit fraction is a fraction whose numerator is 1. Examples of unit fractions are $\frac{1}{2}$, $\frac{1}{5}$, and $\frac{1}{8}$. When students know what the decimal equivalent is for a unit fraction, they can use that to find decimal equivalencies for other fractions.

If $\frac{1}{10} = 0.1$, how can I find…

$\frac{3}{10}$? $\quad \frac{3}{10} = 3 \times \frac{1}{10} \quad 3 \times 0.1 = 0.3$

If $\frac{1}{3} = 0.\overline{3}$, how can I find…

$\frac{2}{3}$? $\quad \frac{2}{3} = 2 \times \frac{1}{3} \quad 2 \times 0.\overline{3} = 0.\overline{6}$

There are some procedural ways to change decimals to fractions (like long division: $\frac{3}{8}$ = 3 divided by 8) that might seem more efficient, but this lesson is serving multiple purposes. Exploring different ways to convert one form of a number into another reviews and extends students' flexibility with thinking about numbers.

You can use other fractional relationships as well!

Example: What would be the decimal equivalent of $\frac{7}{8}$?

$\frac{4}{8} = \frac{1}{2} = 0.5$ $\quad \frac{2}{8}$ is half of $\frac{4}{8}$, so half of 0.5 (or 0.50) is 0.25. $\frac{1}{8}$ is half of $\frac{2}{8}$, so half of 0.25 (or 0.250) is 0.125.

$$\frac{4}{8} + \frac{2}{8} + \frac{1}{8} = \frac{7}{8}$$

$$0.5 + 0.25 + 0.125 = \mathbf{0.875}$$