

Name Jack

Date _____

1. Each rectangle represents 1 whole. Draw horizontal lines to decompose each rectangle into the number of units as indicated. Use the model to give the shaded area as a sum and as product of unit fractions. Use parentheses to show the relationship between the number sentences. The first one has been partially done for you.

a. sixths



$$\frac{2}{3} = \frac{4}{6}$$

$$\frac{\text{II}}{3} + \frac{\text{II}}{3} = \left(\frac{1}{6} + \frac{1}{6}\right) + \left(\frac{1}{6} + \frac{1}{6}\right) = \frac{4}{6}$$

$$\left(\frac{1}{6} + \frac{1}{6}\right) + \left(\frac{1}{6} + \frac{1}{6}\right) = \left(2 \times \frac{\text{II}}{6}\right) + \left(2 \times \frac{\text{II}}{6}\right) = \frac{4}{6}$$

$$\frac{2}{3} = 4 \times \frac{\text{II}}{6} = \frac{4}{6}$$

b. tenths



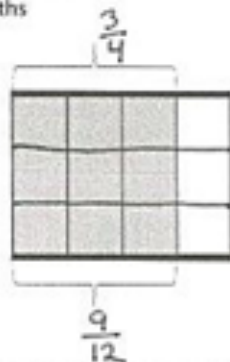
$$\frac{2}{5} = \frac{4}{10}$$

$$\frac{1}{5} + \frac{1}{5} = \left(\frac{1}{10} + \frac{1}{10}\right) + \left(\frac{1}{10} + \frac{1}{10}\right) = \frac{4}{10}$$

$$\left(\frac{1}{10} + \frac{1}{10}\right) + \left(\frac{1}{10} + \frac{1}{10}\right) = \left(2 \times \frac{1}{10}\right) + \left(2 \times \frac{1}{10}\right) = \frac{4}{10}$$

$$\frac{2}{5} = 4 \times \frac{1}{10} = \frac{4}{10}$$

c. twelfths



$$\frac{3}{4} = \frac{9}{12}$$

$$\frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \left(\frac{1}{12} + \frac{1}{12} + \frac{1}{12}\right) + \left(\frac{1}{12} + \frac{1}{12} + \frac{1}{12}\right) + \left(\frac{1}{12} + \frac{1}{12} + \frac{1}{12}\right) = \frac{9}{12}$$

$$\left(\frac{1}{12} + \frac{1}{12} + \frac{1}{12}\right) + \left(\frac{1}{12} + \frac{1}{12} + \frac{1}{12}\right) + \left(\frac{1}{12} + \frac{1}{12} + \frac{1}{12}\right) = \left(3 \times \frac{1}{12}\right) + \left(3 \times \frac{1}{12}\right) + \left(3 \times \frac{1}{12}\right) = \frac{9}{12}$$

$$\frac{3}{4} = 9 \times \frac{1}{12} = \frac{9}{12}$$

2. Draw area models to show the decompositions represented by the number sentences below. Express each as a sum and product of unit fractions. Use parentheses to show the relationship between the number sentences.

a. $\frac{3}{5} = \frac{6}{10}$



$$\frac{3}{5} = \frac{6}{10}$$

$$\frac{1}{5} + \frac{1}{5} + \frac{1}{5} = \left(\frac{1}{10} + \frac{1}{10}\right) + \left(\frac{1}{10} + \frac{1}{10}\right) + \left(\frac{1}{10} + \frac{1}{10}\right) = \frac{6}{10}$$

$$\left(\frac{1}{10} + \frac{1}{10}\right) + \left(\frac{1}{10} + \frac{1}{10}\right) + \left(\frac{1}{10} + \frac{1}{10}\right) = (2 \times \frac{1}{10}) + (2 \times \frac{1}{10}) + (2 \times \frac{1}{10}) = \frac{6}{10}$$

$$\frac{3}{5} = 6 \times \frac{1}{10} = \frac{6}{10}$$

b. $\frac{3}{4} = \frac{6}{8}$



$$\frac{3}{4} = \frac{6}{8}$$

$$\frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \left(\frac{1}{8} + \frac{1}{8}\right) + \left(\frac{1}{8} + \frac{1}{8}\right) + \left(\frac{1}{8} + \frac{1}{8}\right) = \frac{6}{8}$$

$$\left(\frac{1}{8} + \frac{1}{8}\right) + \left(\frac{1}{8} + \frac{1}{8}\right) + \left(\frac{1}{8} + \frac{1}{8}\right) = (2 \times \frac{1}{8}) + (2 \times \frac{1}{8}) + (2 \times \frac{1}{8}) = \frac{6}{8}$$

$$\frac{3}{4} = 6 \times \frac{1}{8} = \frac{6}{8}$$

3. Step 1: Draw an area model for a fraction with the denominator of 3, 4, or 5.

Step 2: Shade in more than one fractional unit.

Step 3: Partition the area model again to find an equivalent fraction.

Step 4: Write the equivalent fractions as a number sentence. (If you've written a number sentence already on this Problem Set, start over.)



$$\frac{2}{4} = \frac{4}{8}$$

$$\frac{1}{4} + \frac{1}{4} = \left(\frac{1}{8} + \frac{1}{8}\right) + \left(\frac{1}{8} + \frac{1}{8}\right) = \frac{4}{8}$$

$$\left(\frac{1}{8} + \frac{1}{8}\right) + \left(\frac{1}{8} + \frac{1}{8}\right) = (2 \times \frac{1}{8}) + (2 \times \frac{1}{8}) = \frac{4}{8}$$

$$\frac{2}{4} = 4 \times \frac{1}{8} = \frac{4}{8}$$



COMMON
CORE

Lesson 6:
Date:

Decompose fractions using area models to show equivalence.
11/13/13

engage^{ny}

5.A.9