

Name Jack

Date _____

Each rectangle represents 1 whole.

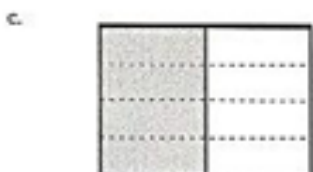
1. The shaded unit fractions have been decomposed into smaller units. Express the equivalent fractions in a number sentence using multiplication. The first one has been done for you.



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



$$\frac{1}{2} = \frac{1 \times 3}{2 \times 3} = \frac{3}{6}$$



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



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

2. Decompose the shaded fractions into smaller units using the area models. Express the equivalent fractions in a number sentence using multiplication.



$$\frac{1}{4} = \frac{1 \times 4}{4 \times 4} = \frac{4}{16}$$



$$\frac{1}{5} = \frac{1 \times 3}{5 \times 3} = \frac{3}{15}$$



$$\frac{1}{6} = \frac{1 \times 3}{6 \times 3} = \frac{3}{18}$$



$$\frac{1}{7} = \frac{1 \times 2}{7 \times 2} = \frac{2}{14}$$

- e. What happened to the size of the fractional units when you decomposed the fraction?

When I decomposed the fraction, the size of the fractional units got smaller.

- f. What happened to the total number of units in the whole when you decomposed the fraction?

Decomposing the fraction increased the number of units in the whole.

3. Draw three different area models to represent $\frac{1}{3}$ by shading. Decompose the shaded fraction into (a) sixths, (b) ninths, and (c) twelfths. Use multiplication to show how each fraction is equivalent to $\frac{1}{3}$.

a.



$$\frac{1}{3} = \frac{1 \times 2}{3 \times 2} = \frac{2}{6}$$

b.



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

c.



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