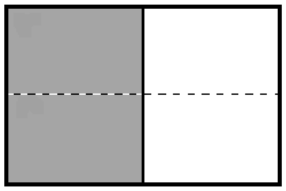
Name _____ Date _____

Each rectangle represents 1.

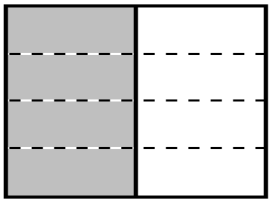
1. The shaded unit fractions have been decomposed into smaller units. Express the equivalent fractions in a number sentence using multiplication. The first one has been done for you.

a.



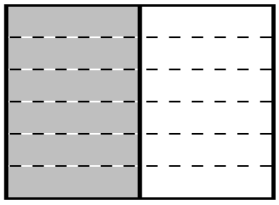
$\frac{1}{2} = \frac{1 \times 2}{2 \times 2} = \frac{2}{4}$

b.



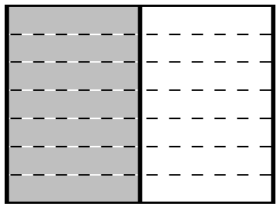
$\frac{1}{2} = \frac{1 \times 4}{2 \times 4} = \frac{4}{8}$

c.



$\frac{1}{2} = \frac{1 \times 6}{2 \times 6} = \frac{6}{12}$

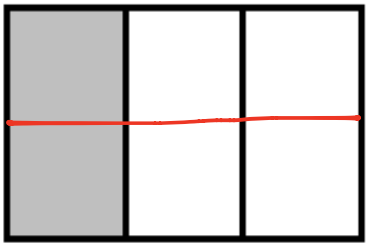
d.



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

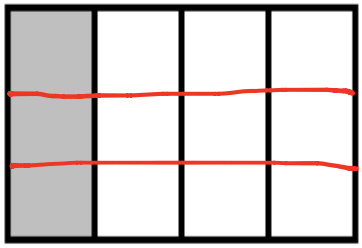
2. Decompose the shaded fractions into smaller units using the area models. Express the equivalent fractions in a number sentence using multiplication. ANSWERS WILL VARY.

a.



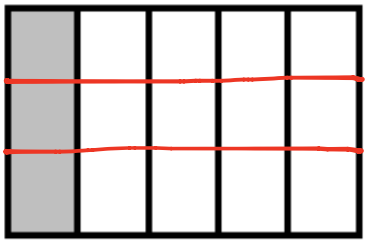
$\frac{1}{3} = \frac{1 \times 2}{3 \times 2} = \frac{2}{6}$

b.



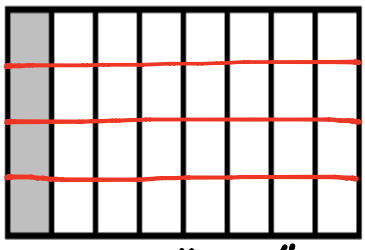
$\frac{1}{4} = \frac{1 \times 3}{4 \times 3} = \frac{3}{12}$

c.



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

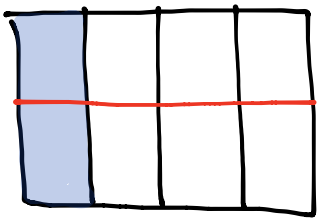
d.



$\frac{1}{8} = \frac{1 \times 4}{8 \times 4} = \frac{4}{32}$

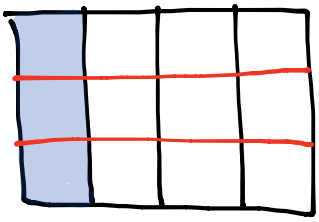
3. Draw three different area models to represent 1 fourth by shading.
   Decompose the shaded fraction into (a) eighths, (b) twelfths, and (c) sixteenths.
   Use multiplication to show how each fraction is equivalent to 1 fourth.

   a.



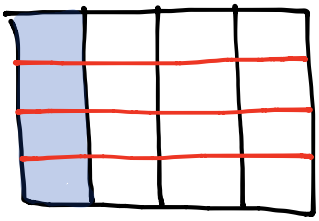
$\frac{1}{4} = \frac{1 \times 2}{4 \times 2} = \frac{2}{8}$

   b.



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

   c.



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