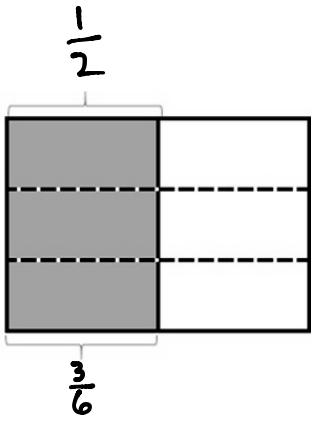
Name _____ Date _____

1. Draw horizontal lines to decompose each rectangle into the number of rows as indicated. Use the model to give the shaded area as both a sum of unit fractions and as a multiplication sentence.

a. 3 rows

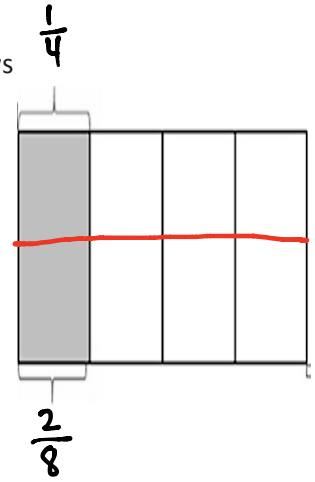


$\frac{1}{2} = \frac{3}{6}$

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

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

b. 2 rows

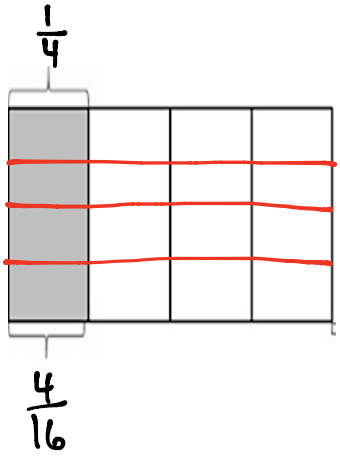


$\frac{1}{4} = \frac{2}{8}$

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

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

c. 4 rows



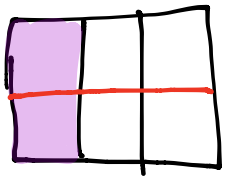
$\frac{1}{4} = \frac{4}{16}$

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

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

2. Draw area models to show the decompositions represented by the number sentences below. Represent the decomposition as a sum of unit fractions and as a multiplication sentence.

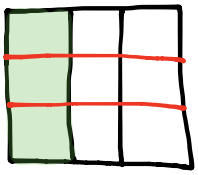
a. $\frac{1}{3} = \frac{2}{6}$



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

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

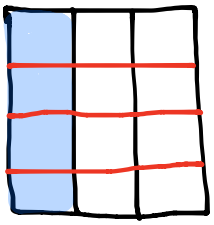
b. $\frac{1}{3} = \frac{3}{9}$



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

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

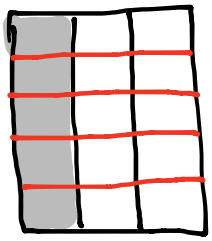
c. $\frac{1}{3} = \frac{4}{12}$



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

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

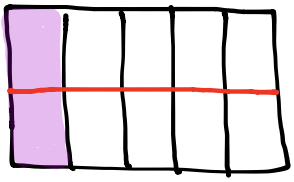
d. $\frac{1}{3} = \frac{5}{15}$



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

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

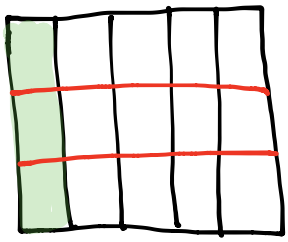
e. $\frac{1}{5} = \frac{2}{10}$



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

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

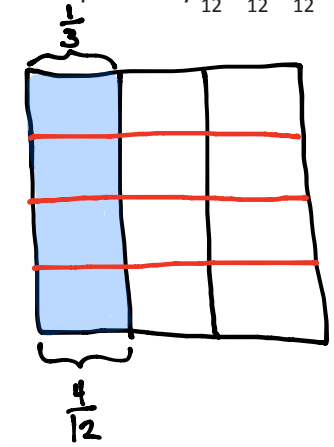
f. $\frac{1}{5} = \frac{3}{15}$



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

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

3. Explain why $\frac{1}{12} + \frac{1}{12} + \frac{1}{12} + \frac{1}{12}$ is the same as $\frac{1}{3}$.



Explanations will vary.

This area model shows that the area of $\frac{1}{3}$ covers the same amount as 4 twelfths.