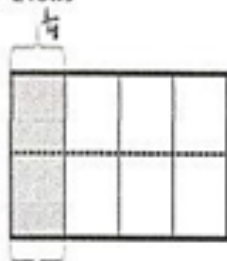


Name Jack Date \_\_\_\_\_

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. 2 rows

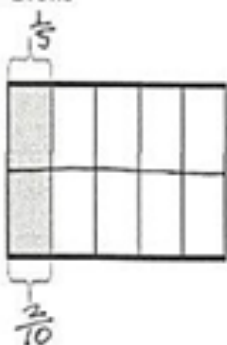


$$\frac{1}{4} = \frac{2}{8}$$

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

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

b. 2 rows

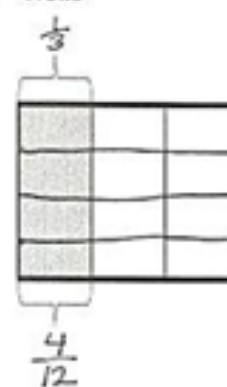


$$\frac{1}{5} = \frac{2}{10}$$

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

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

c. 4 rows



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

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

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

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



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

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

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



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

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

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



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

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

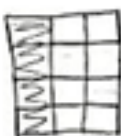
d.  $\frac{1}{3} = \frac{2}{6}$



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

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

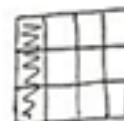
e.  $\frac{1}{3} = \frac{4}{12}$



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

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

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



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

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

3. Explain why  $\frac{1}{12} + \frac{1}{12} + \frac{1}{12}$  is the same as  $\frac{1}{4}$ .

In the area model, the area of three twelfths ( $\frac{1}{12} + \frac{1}{12} + \frac{1}{12}$ ) equals the area of  $\frac{1}{4}$  of the model so the fractions are equal.