1. Fill in the blanks. The first one has been done for you.
   a. $\frac{1}{4} \times 1 = \frac{1}{4} \times \frac{3}{3} = \frac{3}{12}$
   b. $\frac{3}{4} \times 1 = \frac{3}{4} \times \frac{7}{7} = \frac{21}{28}$
   c. $\frac{7}{4} \times 1 = \frac{7}{4} \times \frac{5}{5} = \frac{35}{20}$
   
   d. Use words to compare the size of the product to the size of the first factor.
   $\frac{1}{4} \Theta \frac{3}{12} : 3 = \frac{1}{4}$
   $\frac{3}{4} \Theta \frac{21}{28} : 7 = \frac{3}{4}$
   $\frac{1}{4} \Theta \frac{35}{20} : 5 = \frac{7}{4}$
   The size of the factor is equal to the size of the product.

2. Express each fraction as an equivalent decimal.
   a. $\frac{1}{4} \times \frac{25}{25} = \frac{25}{100} = 0.25$
   b. $\frac{3}{4} \times \frac{25}{25} = \frac{75}{100} = 0.75$
   
   c. $\frac{1}{5} \times \frac{20}{20} = \frac{20}{100} = 0.20$
   d. $\frac{4}{5} \times \frac{20}{20} = \frac{80}{100} = 0.80$
   
   e. $\frac{1}{20} \times \frac{5}{5} = \frac{5}{100} = 0.05$
   f. $\frac{27}{20} \times \frac{5}{5} = \frac{135}{100} = 1.35$
   
   g. $\frac{7}{4} \times \frac{25}{25} = \frac{175}{100} = 1.75$
   h. $\frac{8}{5} \times \frac{20}{20} = \frac{160}{100} = 1.60$
   
   i. $\frac{24}{25} \times \frac{12}{12} = \frac{96}{100} = 0.96$
   j. $\frac{93}{50} \times \frac{2}{2} = \frac{186}{100} = 1.86$
   
   k. $2\frac{6}{25} \times \frac{4}{4} = 2\frac{24}{100} = 2.24$
   l. $3\frac{31}{50} \times \frac{2}{2} = 3\frac{62}{100} = 3.62$
3. Jack said that if you take a number and multiply it by a fraction, the product will always be smaller than what you started with. Is he correct? Why or why not? Explain your answer, and give at least two examples to support your thinking.

No, he is not correct. If you multiply a number by a fraction equal to 1 or a fraction greater than 1, the product will be equal or larger than what you started with.

\[ \frac{4}{4} \times \frac{3}{3} = \frac{12}{12} = 1 \quad \text{or} \quad 4 \times \frac{3}{2} = \frac{12}{2} = 6 \]

4. There is an infinite number of ways to represent 1 on the number line. In the space below, write at least four expressions multiplying by 1. Represent one differently in each expression.

a) \( 2 \times \frac{4}{4} = \frac{8}{4} \)

b) \( 2 \times \frac{3}{3} = \frac{6}{3} \)

c) \( 5 \times \frac{8}{8} = \frac{40}{8} \)

5. Maria multiplied by 1 to rename \( \frac{1}{4} \) as hundredths. She made factor pairs equal to 10. Use her method to change one-eighth to an equivalent decimal.

Maria's way: \( \frac{1}{4} = \frac{1}{2 \times 2} \times \frac{5 \times 5}{5 \times 5} = \frac{5 \times 5}{(2 \times 5) \times (2 \times 5)} = \frac{25}{100} = 0.25 \)

\( \frac{1}{8} = \frac{1}{2 \times 2 \times 2} \times \frac{5 \times 5 \times 5}{5 \times 5 \times 5} = \frac{5 \times 5 \times 5}{(2 \times 5) \times (2 \times 5) \times (2 \times 5)} = \frac{125}{1,000} = 0.125 \)

Paulo renamed \( \frac{1}{8} \) as a decimal, too. He knows the decimal equal to \( \frac{1}{4} \) and he knows that \( \frac{1}{8} \) is half as much as \( \frac{1}{4} \). Can you use his ideas to show another way to find the decimal equal to \( \frac{1}{8} \)?

- \( \frac{1}{4} = 0.25 = 25 \text{ hundredths or 250 thousandths} \)
- \( \frac{1}{8} \) is \( \frac{1}{2} \) of \( \frac{1}{4} \) \( \rightarrow \) \( \frac{1}{2} \) of 25 hundredths or 250 thousandths

\[ 250 \text{ thousandths} \div 2 = 125 \text{ thousandths} \]

\[ \frac{1}{8} = 0.125 \]