Multiply unit fractions by an integer



Complete the calculations.

Use the bar models to help you.



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

$$3 \times \frac{1}{5} = \begin{vmatrix} \frac{3}{5} \end{vmatrix}$$



$$\frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} = \boxed{\frac{4}{7}}$$

$$4 \times \frac{1}{7} = \boxed{\frac{4}{7}}$$



$$\frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} = \boxed{\frac{5}{8}}$$

$$5 \times \frac{1}{8} = \boxed{\frac{5}{8}}$$

$$\frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} = \boxed{\frac{7}{10}} \qquad 7 \times \frac{1}{10} = \boxed{\frac{7}{10}}$$

Complete the multiplications.

a)
$$3 \times \frac{1}{8} = \boxed{\frac{3}{8}}$$

e)
$$\frac{1}{5} \times 4 = \frac{4}{5}$$

b)
$$3 \times \frac{1}{10} = \boxed{\frac{3}{10}}$$

f)
$$\frac{1}{9} \times 8 = \frac{8}{9}$$

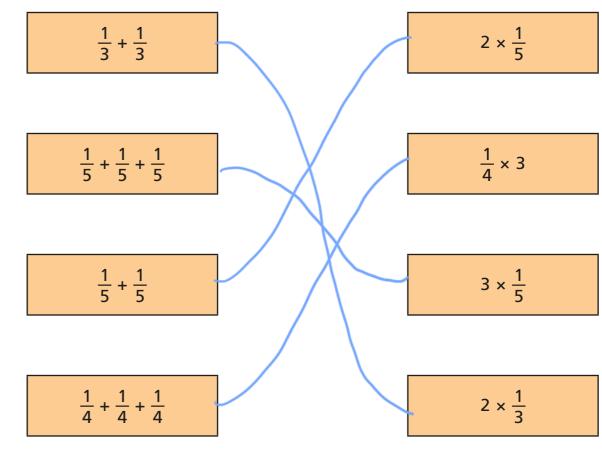
c)
$$\frac{1}{8} \times 5 = \frac{5}{8}$$

g)
$$8 \times \frac{1}{11} = \frac{8}{11}$$

d)
$$9 \times \frac{1}{10} = \boxed{\frac{9}{10}}$$

h)
$$\frac{1}{11} \times 10 = \frac{10}{11}$$

Match the addition to the equivalent multiplication.



A pizza is cut into sixths.

Jack eats five of the slices.

Write a multiplication to represent this.

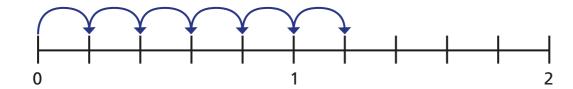
$$5 \times \frac{1}{6} = \frac{5}{6}$$

5 Complete the multiplications.

Use the number lines to help you.

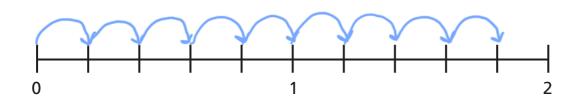
Give each answer as an improper fraction and as a mixed number.

a)



$$6 \times \frac{1}{5} = \boxed{\frac{6}{5}} = \boxed{\boxed{\frac{1}{5}}}$$

b)



$$9 \times \frac{1}{5} = \boxed{\frac{9}{5}} = \boxed{\frac{4}{5}}$$

6 Complete the multiplications.

a)
$$11 \times \frac{1}{10} = \boxed{\frac{11}{10}} = \boxed{\frac{1}{10}}$$

b)
$$11 \times \frac{1}{9} = \boxed{\frac{11}{9}} = \boxed{\frac{2}{9}}$$

c)
$$\frac{1}{8} \times 11 = \boxed{\frac{11}{8}} = \boxed{\frac{3}{8}}$$

d)
$$11 \times \frac{1}{7} = \boxed{\frac{11}{7}} = \boxed{\frac{4}{7}}$$

e)
$$11 \times \frac{1}{6} = \boxed{\frac{11}{6}} = \boxed{\frac{5}{6}}$$

What do you notice?

Does this pattern continue?

Complete the calculations.

a)
$$\sqrt{\frac{1}{3}} = \frac{2}{3}$$

e)
$$\frac{1}{8} \times \left| \right| = 1\frac{3}{8}$$

b)
$$3 \times \frac{1}{3} = 1$$

f)
$$\frac{1}{2}$$
 $\times \frac{1}{2} = 3\frac{1}{2}$

c)
$$\frac{1}{7} \times \frac{1}{7} =$$

g)
$$\times \frac{1}{3} = 3\frac{1}{3}$$

d)
$$\frac{1}{7} \times \boxed{ } = 1$$

h)
$$\frac{1}{4} \times \boxed{ | 3 |} = 3\frac{1}{4}$$





Multiply non-unit fractions by an integer



Complete the calculations.

Use the bar models to help you.

a) Wh wh wh wh wh wh

$$\frac{2}{7} + \frac{2}{7} + \frac{2}{7} = \boxed{\frac{6}{7}}$$

$$3 \times \frac{2}{7} = \boxed{\frac{6}{7}}$$

b) m m m m m m m m

$$\frac{3}{10} + \frac{3}{10} + \frac{3}{10} = \boxed{\frac{9}{10}}$$

$$3 \times \frac{3}{10} = \boxed{\frac{9}{10}}$$

c) m m m m m m m m m

$$\frac{2}{9} + \frac{2}{9} + \frac{2}{9} + \frac{2}{9} = \boxed{\frac{6}{9}}$$

$$4 \times \frac{2}{9} = \boxed{\frac{8}{9}}$$

d) Wh wh wh wh wh wh wh

$$\frac{4}{9} + \frac{4}{9} = \boxed{\frac{8}{9}}$$

$$2 \times \frac{4}{9} = \boxed{\frac{3}{4}}$$

What do you notice about parts c) and d)? Talk to a partner.



Complete the multiplications.

a)
$$2 \times \frac{3}{7} = \frac{6}{7}$$

d)
$$5 \times \frac{2}{11} = \frac{10}{11}$$

b)
$$3 \times \frac{3}{11} = \boxed{\frac{9}{11}}$$

e)
$$\frac{2}{15} \times 7 = \frac{14}{15}$$

c)
$$\frac{2}{11} \times 4 = \frac{8}{11}$$

f)
$$\frac{7}{15} \times 2 = \frac{14}{15}$$





Explain the mistake that Alex has made.

She has multiplied both the numerator and the

denominator.

$$\frac{4}{11} \times 2 = \frac{8}{11}$$

A cat eats $\frac{2}{15}$ of a bag of biscuits a day.

What fraction of the bag does the cat eat in 4 days?



The cat eats $\frac{3}{15}$ of the bag in 4 days.

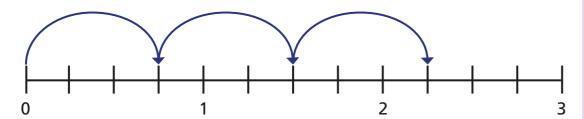
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Complete the multiplications.

Use the number lines to help you.

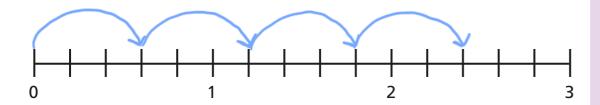
Give each answer as an improper fraction and as a mixed number.

a)



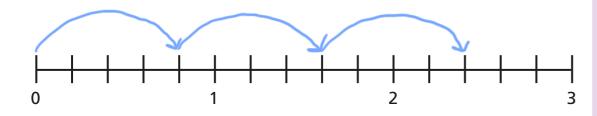
$$3 \times \frac{3}{4} = \boxed{\frac{9}{4}} = \boxed{\frac{2}{4}}$$

b)



$$4 \times \frac{3}{5} = \begin{vmatrix} \frac{12}{5} \\ \frac{2}{5} \end{vmatrix} = \begin{vmatrix} \frac{2}{5} \\ \frac{2}{5} \end{vmatrix}$$

c)



$$3 \times \frac{4}{5} = \boxed{\frac{12}{5}} = \boxed{\frac{2}{5}}$$



6 Complete the multiplications.

a)
$$5 \times \frac{2}{3} = \boxed{\frac{10}{3}} = \boxed{\frac{3}{3}}$$

b)
$$4 \times \frac{4}{5} = \boxed{\frac{16}{5}} = \boxed{\frac{31}{5}}$$

c)
$$\frac{2}{7} \times 11 = \boxed{\frac{22}{7}} = \boxed{3\frac{1}{7}}$$

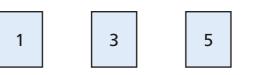
d)
$$4 \times \frac{7}{9} = \boxed{\frac{28}{9}} = \boxed{\frac{3}{9}}$$

e)
$$17 \times \frac{2}{11} = \boxed{\frac{34}{11}} = \boxed{\frac{31}{11}}$$

- f) Describe the pattern you can see in the answers.
- g) What could the next multiplication in the pattern be?Write two possible options.

e.g.
$$\frac{5}{13} \times 8$$

7 Here are some digit cards.



Use the digit cards to complete the multiplication.

$$\boxed{5} \times \frac{\boxed{3}}{8} = \frac{15}{8} = \boxed{\boxed{\frac{7}{8}}}$$





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