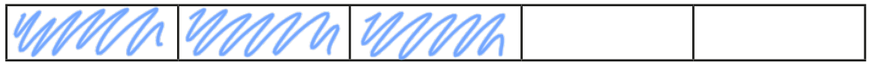
Multiply unit fractions by an integer

1 Complete the calculations.

Use the bar models to help you.

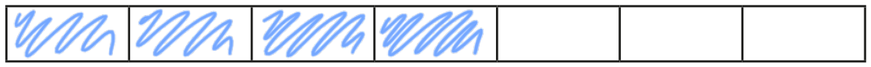
a)



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

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

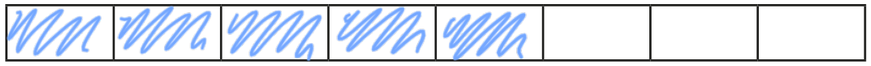
b)



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

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

c)



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

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

d)

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

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

2 Complete the multiplications.

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

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

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

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

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

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

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

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

3 Match the addition to the equivalent multiplication.

$\frac{1}{3} + \frac{1}{3}$	$2 \times \frac{1}{5}$
$\frac{1}{5} + \frac{1}{5} + \frac{1}{5}$	$\frac{1}{4} \times 3$
$\frac{1}{5} + \frac{1}{5}$	$3 \times \frac{1}{5}$
$\frac{1}{4} + \frac{1}{4} + \frac{1}{4}$	$2 \times \frac{1}{3}$

4 A pizza is cut into sixths.

Jack eats five of the slices.

Write a multiplication to represent this.

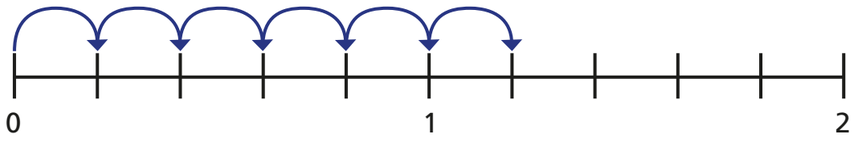
$5 \times \frac{1}{6} = \frac{5}{6}$

5 Complete the multiplications.

Use the number lines to help you.

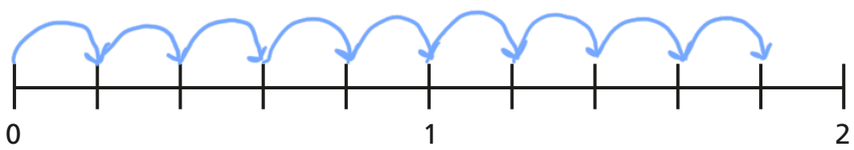
Give each answer as an improper fraction and as a mixed number.

a)



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

b)



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

6 Complete the multiplications.

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

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

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

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

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

What do you notice?

Does this pattern continue?

7 Complete the calculations.

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

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

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

d) $\frac{1}{7} \times 10 = 1\frac{3}{7}$

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

f) $7 \times \frac{1}{2} = 3\frac{1}{2}$

g) $10 \times \frac{1}{3} = 3\frac{1}{3}$

h) $\frac{1}{4} \times 13 = 3\frac{1}{4}$

Multiply non-unit fractions by an integer

1 Complete the calculations.

Use the bar models to help you.

a)

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

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

b)

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

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

c)

$\frac{2}{9} + \frac{2}{9} + \frac{2}{9} + \frac{2}{9} = \boxed{\frac{8}{9}}$

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

d)

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

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

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

2 Complete the multiplications.

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

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

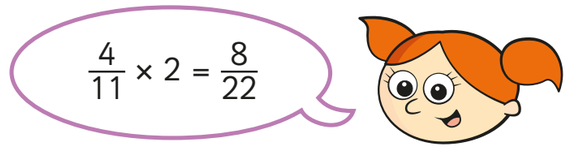
c) $\frac{2}{11} \times 4 = \boxed{\frac{8}{11}}$

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

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

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

3



Explain the mistake that Alex has made.

She has multiplied both the numerator and the denominator.

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

4 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?

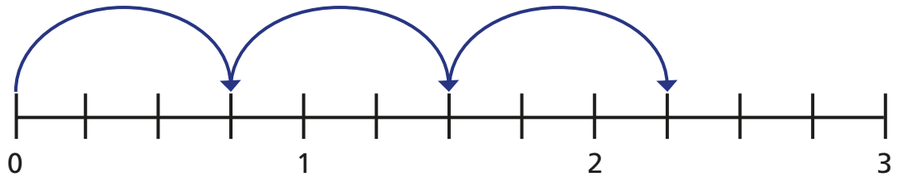
The cat eats $\boxed{\frac{8}{15}}$ of the bag in 4 days.

5 Complete the multiplications.

Use the number lines to help you.

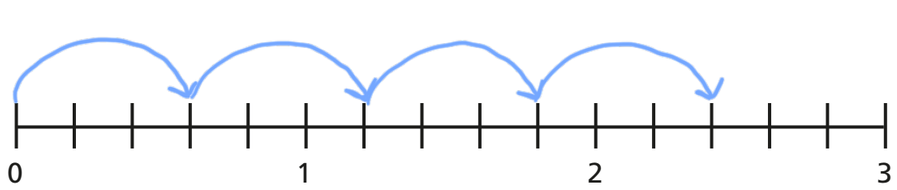
Give each answer as an improper fraction and as a mixed number.

a)



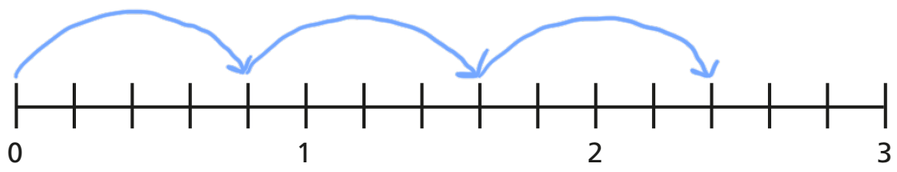
$3 \times \frac{3}{4} = \boxed{\frac{9}{4}} = \boxed{2\frac{1}{4}}$

b)



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

c)



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

6 Complete the multiplications.

a) $5 \times \frac{2}{3} = \boxed{\frac{10}{3}} = \boxed{3\frac{1}{3}}$

b) $4 \times \frac{4}{5} = \boxed{\frac{16}{5}} = \boxed{3\frac{1}{5}}$

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

d) $4 \times \frac{7}{9} = \boxed{\frac{28}{9}} = \boxed{3\frac{1}{9}}$

e) $17 \times \frac{2}{11} = \boxed{\frac{34}{11}} = \boxed{3\frac{1}{11}}$

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

$10 \times \frac{4}{13}$

7 Here are some digit cards.

1	3	5	7

Use the digit cards to complete the multiplication.

$\boxed{5} \times \frac{\boxed{3}}{8} = \frac{15}{8} = \boxed{1}\frac{\boxed{7}}{8}$