

16.2.22

LO: To multiply unit and non-unit fractions by an integer.

I know what repeated addition is.

I can multiply unit and non-unit fractions by an integer.

I understand that the denominator stays the same whilst the numerator is multiplied by the integer.

## Flashback 4.

### Flashback 4

Year

- 1) Work out  $\frac{3}{5} + \frac{7}{20} + \frac{1}{10}$
- 2) Add  $\frac{1}{5}$  and  $\frac{1}{10}$
- 3) Write  $\frac{29}{6}$  as a mixed number.
- 4) Add together 724 and 879

## Flashback 4

1) Work out  $\frac{3}{5} + \frac{7}{20} + \frac{1}{10}$

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GET READY

Match the multiplication to the addition

$5 \times 2$

$9 + 9 + 9$

$0 \times 6$

$2 + 2 + 2 + 2 + 2$

$9 \times 3$

$\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$

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

$0 + 0 + 0 + 0 + 0 + 0$

LET'S LEARN

Alex has 4 pieces of wood.

Each piece of wood is  $\frac{1}{7}$  m long.

How long is all of Alex's wood?

Have a think



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

Is the same as:

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

Have a think



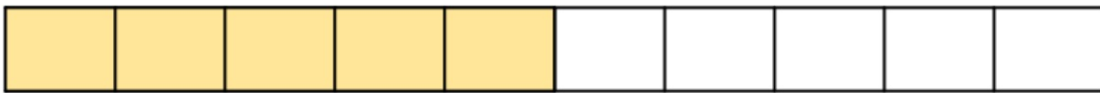
$$\frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \frac{1}{4} \times \square = \frac{\square}{4}$$

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



Show me on whiteboards:

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



Can you find an equivalent fraction?

*Multiplying the numerator.*

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

$$\frac{1}{6} \times 14 =$$



$$\frac{1}{9} \times \square = 2$$

$$\frac{1}{9} \times \square = \frac{18}{9}$$



Have a go at the questions.

**1** Complete the calculations.  
Use bar models to help you.

a)  $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} = \square$                        $3 \times \frac{1}{5} = \square$

b)  $\frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} = \square$                        $4 \times \frac{1}{7} = \square$

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

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

**2** Complete the multiplications.

a)  $3 \times \frac{1}{8} = \square$                       e)  $\frac{1}{5} \times 4 = \square$

b)  $3 \times \frac{1}{10} = \square$                       f)  $\frac{1}{9} \times 8 = \square$

c)  $\frac{1}{8} \times 5 = \square$                       g)  $8 \times \frac{1}{11} = \square$

d)  $9 \times \frac{1}{10} = \square$                       h)  $\frac{1}{11} \times 10 = \square$

**6** Complete the multiplications.

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

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

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

5 B's:  
Brain  
Book  
Board  
Buddy  
Boss

Next sheet

**1** Complete the calculations.  
Use bar models to help you.

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

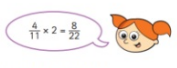
b)  $\frac{3}{10} + \frac{3}{10} + \frac{3}{10} = \square$                        $3 \times \frac{3}{10} = \square$

**2** Complete the multiplications.

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

b)  $3 \times \frac{3}{11} = \square$

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

**3**   $\frac{4}{11} \times 2 = \frac{8}{22}$   
Explain the mistake that Alex has made.

**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?

Ron drinks  $\frac{2}{9}$  l of orange juice each day for 3 days.

How much orange juice does Ron drink during the 3 days altogether?



Have a think



$\frac{2}{9}$



$\frac{2}{9}$



$\frac{2}{9}$

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

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

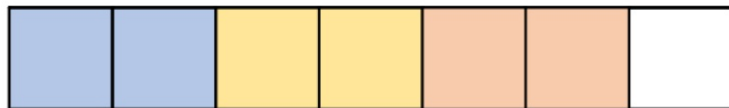
$$\frac{2}{7} \times 3 =$$

$$2 \times 3 = 6 \text{ and } 7 \times 3 = 21$$

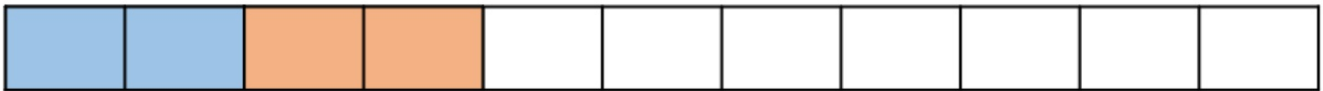
So the answer is  $\frac{6}{21}$



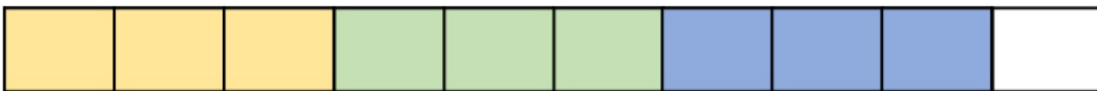
$$\frac{2}{7} + \frac{2}{7} + \frac{2}{7}$$



$$\frac{2}{11} + \frac{2}{11} = 2 \times \frac{2}{11} =$$



$$\frac{3}{10} \times 3 = \quad + \quad + \quad =$$



*These will be improper fractions so we have to convert them to mixed numbers.*

$$13 \times \frac{3}{8} =$$

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

The fraction is a non-unit fraction.

$$\square \times \frac{\square}{9} = 4 = \frac{36}{9}$$

Factors of 36

Have a go at the questions.

5 B's:  
Brain  
Book  
Board  
Buddy  
Boss

- 1 Complete the calculations.  
Use bar models to help you.

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

b)  $\frac{3}{10} + \frac{3}{10} + \frac{3}{10} = \square$        $3 \times \frac{3}{10} = \square$


- 2 Complete the multiplications.

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

b)  $3 \times \frac{3}{11} = \square$

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

3

$\frac{4}{11} \times 2 = \frac{8}{22}$  

Explain the mistake that Alex has made.

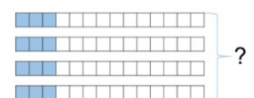
- 4 A cat eats  $\frac{2}{15}$  of a bag of biscuits a day.  
What fraction of the bag does the cat eat in 4 days?

Extension activity:

Use the digit cards only once to complete these multiplications.

9 2 4 6 3  
 $\square \times \frac{\square}{\square} = \frac{\square}{\square}$   
 1 2 3 4 5 6  
 $\square \times \frac{\square}{\square} = \frac{\square}{\square}$

Whitney has calculated  $4 \times \frac{3}{14}$



From the picture I can see that  $4 \times \frac{3}{14} = \frac{12}{56}$



Do you agree?

Explain why.



## Extension activity:

Use the digit cards only once to complete these multiplications.

9 2 4 6 3

$$\square \times \frac{\square}{\square} = \frac{\square}{\square}$$

1 2 3 4 5 6

$$\square \times \frac{\square}{\square} = \frac{\square}{\square}$$

Whitney has calculated  $4 \times \frac{3}{14}$



From the picture I can see that  $4 \times \frac{3}{14} = \frac{12}{56}$



Do you agree?

Explain why.

# True or False ?

Multiply unit fractions by an integer

All of the multiplications are equal to one.

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

$$7 \times \frac{1}{7}$$

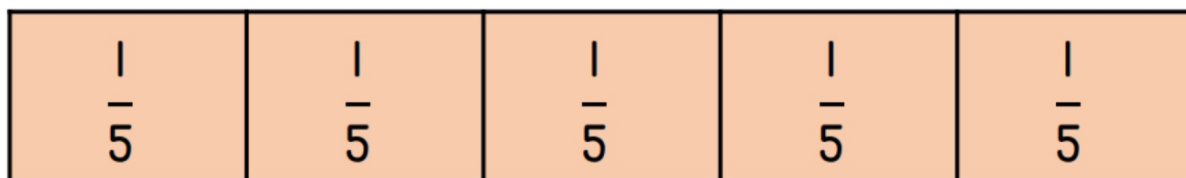
$$10 \times \frac{1}{10}$$

# True or False?

Multiply unit fractions by an integer

True

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



**Year 5  
NUMERACY  
TARGET GRIDS**

I can read Roman numerals to 1000 (M) and recognise years written in numerals.

I can solve number problems and practical problems that involve all of the below.

I can round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000.

I can use negative numbers in context; count forwards and backwards with positive and negative whole numbers through 0

I can count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000.

I know what each digit represents in numbers to 1 000 000.

I can read, write, order and compare numbers to at least 1 000 000.

**Number and Place Value**

I can solve  $\times$  and  $\div$  problems, scaling by fractions and ratio.

I can solve problems involving  $\times$  and  $\div$  including factors, multiples square and cubes.

I can recognise and use square and cube numbers.

I can  $\times$  and  $\div$  whole numbers and decimals by 10, 100 and 1000.

I can multiply and divide numbers mentally.

I can divide numbers up to 4 digits by a one or two-digit number.

I can multiply numbers up to 4 digits by a one or two-digit number.

I can establish whether a number is prime and recall prime numbers up to 19.

I know and use the vocabulary of prime numbers, prime factors and composite.

I can identify multiples and factors including finding all factor pairs.

**Multiplication and Division**

I can use all four operations to solve problems involving measure using decimal notation, including scaling.

I can solve problems involving converting between units of time.

I can estimate the volume and capacity.

I can estimate the area of irregular shapes.

I can calculate and compare the area of rectangles (including squares)

I can measure and calculate the perimeter of composite rectilinear shapes in centimetres & metres.

I understand and use approximate equivalences between metric units and imperial units such as inches & pounds

I can convert between different units of metric measure.

**Measurements**

I can solve problems involving decimals to 3 decimal places.

I can read and order numbers with 3 decimal places.

I can round decimals with 2 decimal places to the nearest whole number & to one decimal place.

I can recognise and use 1000ths and relate them to 10ths, 100ths and decimal equivalents.

I can multiply proper fractions and mixed numbers by whole numbers.

I can  $+$  and  $-$  fractions with the same denominator and denominators that are multiples of the same number.

I can recognise mixed number and improper fractions and convert from one form to another.

I can identify, name and write equivalent fractions of a given fraction.

I can compare and order fractions whose denominators are all multiples of the same number.

**Fractions**

I can identify, describe and represent the position of a shape following a reflection or translation.

I can distinguish between regular and irregular polygons.

I can use the properties of rectangles to deduce related facts and find missing lengths and angles.

I can identify other multiples of  $90^\circ$

I can identify angles at point on a straight line and  $1/2$  a turn.

I can identify angles at a point and one whole turn.

I can draw angles and measure them in degrees ( $^\circ$ )

I know angles are measured in degrees; estimate and compare acute, obtuse and reflex angles.

I can identify 3-D shapes, including cubes and other cuboids from 2-D drawings.

**Geometry**

I can read and write decimal numbers as fractions.

I can write  $\frac{1}{10}$  as a fraction and decimal equivalents.

I can complete, read and interpret information in tables including timetables.

I can solve 'difference' problems using information presented in a line graph.

I can solve 'sum' problems using information presented in a line graph.

I can solve 'comparison' problems using information presented in a line graph.

**Statistics**