

# Fractions

Thursday 21<sup>st</sup> May

Lesson 21

**Fractions - Multiplying proper fractions by whole numbers (answers less than 1)**

Over the last few days, we have multiplied unit fractions by whole numbers. Today, we are going to look at multiplying proper fractions by whole numbers.

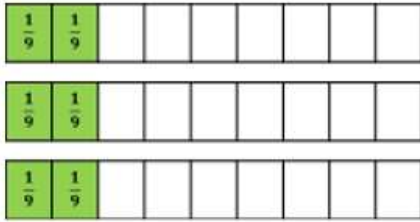
NOTE: Proper fractions are all other fractions which are more than a unit fraction but less than a whole e.g.  $\frac{2}{5}$ ,  $\frac{9}{10}$  etc.

When solving these problems we can use the same strategies as we used for unit fractions.

## Multiplying proper fractions by whole numbers:

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Count the number of ninths to work  $3 \times \frac{2}{9}$



We can solve this problem by using our fraction strips. Here we see that  $3 \times \frac{2}{9} = \frac{6}{9} = \frac{2}{3}$

In this problem we can use the visual prompt to help us recognise that there are  $\frac{6}{9}$

We then simplify it to  $\frac{2}{3}$

We could also use repeated addition:

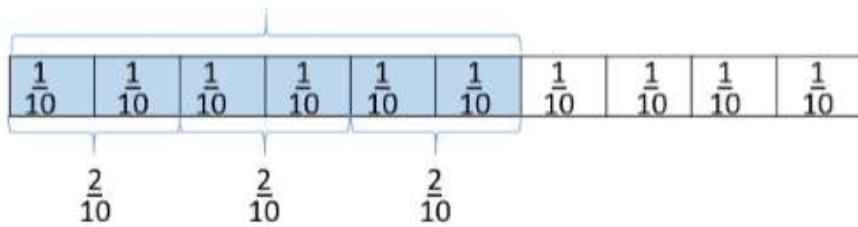
$$3 \times \frac{2}{9} = \frac{2}{9} + \frac{2}{9} + \frac{2}{9} = \frac{6}{9} = \frac{2}{3}$$

Once again we simplify the problem at the end.

You could also present your bar like this:

Here we are solving  $3 \times \frac{2}{10} =$

We represent it on a single fraction strip/bar:



We can now visualise:

$$3 \times \frac{2}{10} = \frac{6}{10} = \frac{3}{5}$$

Draw fraction strips/bars or use repeated addition to solve the following problems. Simplify the answers if required.

1.  $\frac{3}{8} \times 2 =$

2.  $\frac{3}{10} \times 3 =$

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

4.  $\frac{4}{17} \times 4 =$

5.  $\frac{4}{14} \times 3 =$

6.  $\frac{2}{15} \times 7 =$

7.  $\frac{4}{9} \times 2 =$

8.  $\frac{3}{15} \times 4 =$

# Answers

$$1. \frac{3}{8} \times 2 = \frac{3}{8} + \frac{3}{8} = \frac{6}{8} = \frac{3}{4}$$

$$2. \frac{3}{10} \times 3 = \frac{9}{10}$$

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

$$4. \frac{4}{17} \times 4 = \frac{16}{17}$$

$$5. \frac{4}{14} \times 3 = \frac{12}{14} = \frac{6}{7}$$

$$6. \frac{2}{15} \times 7 = \frac{14}{15}$$

$$7. \frac{4}{9} \times 2 = \frac{8}{9}$$

$$8. \frac{3}{15} \times 4 = \frac{12}{15} = \frac{4}{5}$$

here I have shown how to use repeated addition when solving the problem

# Challenge Questions



True or False?

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

Solve the problem and give a written explanation justifying your answer.

Answer

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

True

They both equal  $\frac{6}{7}$

This is because we are using the law of commutativity where the numerator is multiplied by the integer and they can be swapped around to get the same answer i.e.  $2 \times 3 = 3 \times 2$ . The denominator in this problem does not change.