# Division as Multiplying by a Fraction

### Prior Knowledge:

To know that some operations are commutative and use that to simplify calculations

To multiply fractions

### Check:

What is the **easiest** way to do these calculations?

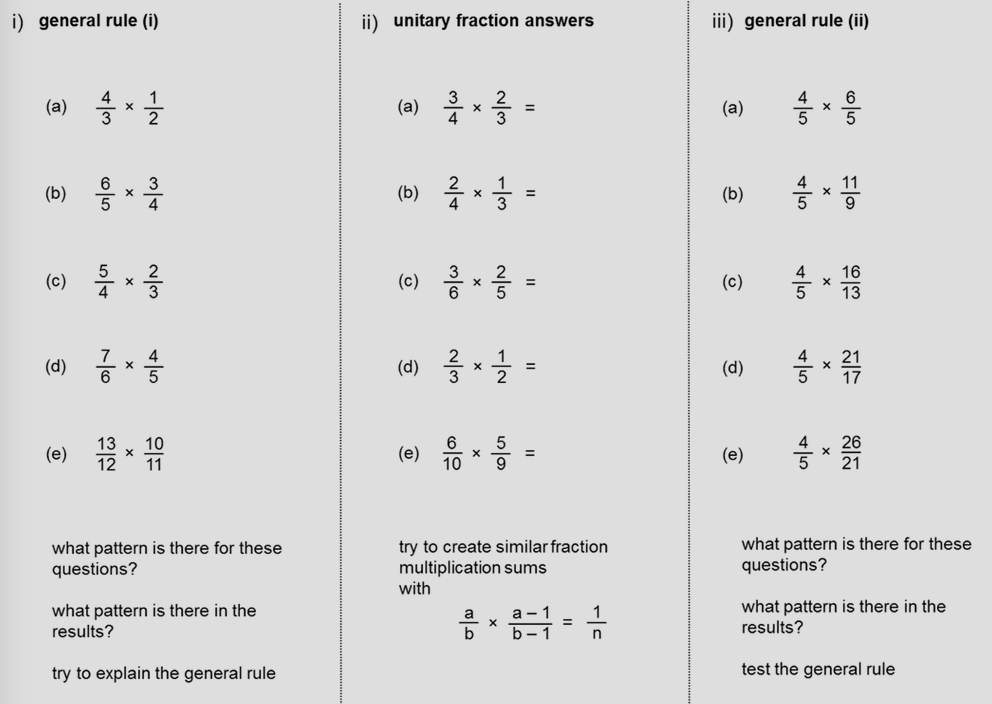
5 × 137 × 2

23 + 96 + 77

Multiply these fractions

Re-teach for those who need it.

Investigation for those with secure understanding:



### Aim:

To know that division is the same as multiplying by an appropriate fraction

### Activities:

Calculate the following

Summarise: what is the point of these questions?

Make up your own pairs to demonstrate this idea

Convert the following divisions into multiplication by a fraction:

### Aim:

To use the idea that division is the same as multiplying by a fraction and the commutative property, to show how calculations can be simplified

### Activities:

Some answers are given to emphasise that the point of this exercise is not about getting the answer, but about understanding how multiplication and division are related.

Example:

Questions:

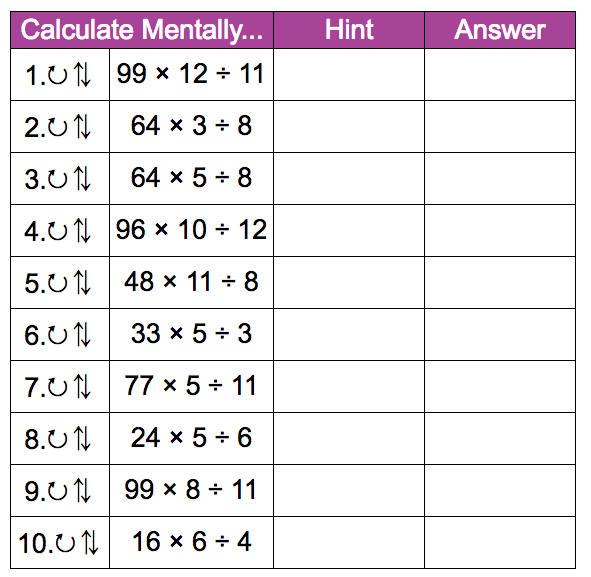
### Aim:

To apply this process quickly.

### Activities:

Mathematicians are lazy: Do these without showing every step

From <http://mathsbot.com/starters/fluentCalcs>



### Aim:

To apply this idea to percentage calculations

### Activities:

Example

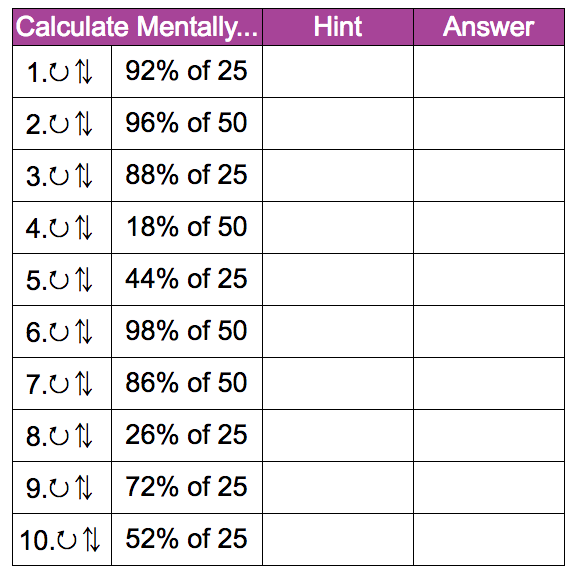
Find of 50.

Questions: Show that the following are true by using fractions and the commutative property.

Find of 50.

Find of 25.

Work these out quickly in your head:



### Aim:

To understand why we write division as a fraction

### Activities:

Teacher explanation

We saw before that was the same as

so it doesn’t matter where the division goes.

If we write the as a fraction: it becomes clearer that you can divide either the 16 or the 73 by 8.

Rewrite these using fractions

**Assessment:**

