

Decimal and fraction equivalents

Notes and guidance

In Year 5, children explored common equivalents between fractions and decimals. In this small step, they extend this learning to include more complex equivalents.

A hundred square is a useful representation to allow children to explore equivalence. Using fraction and decimal walls also enables children to see the relationship between fractions such as $\frac{1}{5}$ and $\frac{2}{10}$ and therefore their decimal equivalents.

They look at methods for finding more complex equivalents by finding a common denominator of 100. These should include examples where children need to simplify fractions with larger denominators, for example $\frac{146}{200}$

Things to look out for

- If children are not confident finding equivalent fractions, they may find converting more complex fractions to decimals difficult.
- Children may be comfortable with the idea of finding a common denominator of 100, but struggle with examples that do not lend themselves to this strategy, for example $\frac{1}{8}$

Key questions

- If the whole has been split into 10/100 equal parts, what is each part worth as a fraction/decimal?
- If you know that _____ is equivalent to _____, what is _____ as a decimal?
- How can you convert fractions with a denominator of 100 to decimals?
- How can you convert fractions with a denominator that is a factor of 100 to decimals?
- How can you find equivalent fractions?
- Why might it be helpful to find an equivalent fraction with a denominator of 100/1,000?

Possible sentence stems

- The first/second digit after a decimal point represents _____
- To find an equivalent fraction, I need to _____ or _____ the _____ and the _____ by the same number.

National Curriculum links

- Use common factors to simplify fractions; use common multiples to express fractions in the same denomination

Decimal and fraction equivalents

Key learning

- The bar model is split into tenths.



- ▶ Complete the sentences.

The whole has been divided into _____ equal parts.

Each part is worth _____

As a fraction, this is written _____

- ▶ On a similar bar model, shade:

- 4 parts
- 5 parts
- 7 parts
- 10 parts

What decimal and what fraction is shown in each diagram?

- Use a blank hundred square.

- ▶ Complete the sentences to match the hundred square.

The whole has been divided into _____ equal parts.

Each part is worth _____

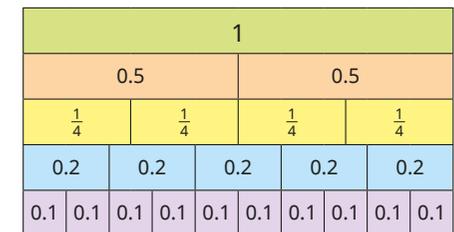
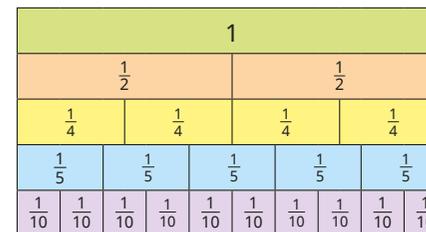
As a fraction, this is written _____

- ▶ On different hundred squares, shade:

- 9 parts
- 25 parts
- 75 parts
- 13 parts
- 50 parts
- 90 parts

What decimal and what fraction is shown in each of your hundred squares?

- Use the fraction and decimal walls to complete the equivalents.



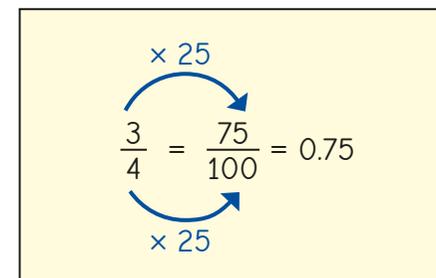
▶ $\frac{1}{2} = \frac{\square}{4} = \frac{\square}{10} = \dots$

▶ $\frac{3}{4} = \dots$

▶ $0.2 = \frac{1}{\square} = \frac{\square}{10}$

▶ $\frac{4}{5} = \frac{\square}{\square} = \dots$

- Rosie has converted three-quarters to a decimal.



Use Rosie's method to find the decimal equivalents of the fractions.

$\frac{17}{20}$

$\frac{23}{50}$

$\frac{11}{25}$

$\frac{112}{200}$

$\frac{275}{500}$

$\frac{192}{300}$

Decimal and fraction equivalents

Reasoning and problem solving

Tiny wants to convert $\frac{137}{500}$ to a decimal.

I can divide 500 by 5 to get a denominator of 100, but then I cannot divide 137 by 5, so I cannot convert it to a decimal.



Explain a different method that Tiny could use.

Write $\frac{137}{500}$ as a decimal.

0.274

1							
$\frac{1}{2}$				$\frac{1}{2}$			
$\frac{1}{4}$		$\frac{1}{4}$		$\frac{1}{4}$		$\frac{1}{4}$	
$\frac{1}{8}$							

To convert $\frac{1}{8}$ to a decimal, would you use an equivalent fraction with a denominator of 10, 100 or 1,000?

Use your choice to convert $\frac{1}{8}$ to a decimal.

Now use your answer to convert $\frac{3}{8}$ to a decimal.

Why is it easy to convert $\frac{4}{8}$ to a decimal?

1,000

0.125

0.375