As outcomes, Year 8 pupils should, for example:

Convert decimals to fractions.
Continue to recognise that each terminating decimal is a fraction. For example, 0.237 = $^{237}/_{1000}$.

Recognise that a recurring decimal is a fraction.

Convert decimals (up to three decimal places) to fractions. For example:
- Convert 0.625 to $^{625}/_{1000}$ and then cancel to $^{5}/_{8}$.

Link to percentages (pages 70–1).

Convert fractions to decimals.
Use division to convert a fraction to a decimal, without and with a calculator. For example:
- Use short division to work out that:
  $^{1}/_{5}$ = 0.2 $^{3}/_{8}$ = 0.375 $^{27}/_{8}$ = … $^{3}/_{7}$ = …
- Use a **calculator** to work out that $^{7}/_{53}$ = …

Investigate fractions such as $^{1}/_{3}$, $^{1}/_{6}$, $^{2}/_{3}$, $^{1}/_{9}$, $^{1}/_{11}$, … converted to decimals. For example:
- Predict what answers you will get when you use a **calculator** to divide:
  3 by 3, 4 by 3, 5 by 3, 6 by 3, and so on.

Order fractions.
Compare and order fractions by converting them to fractions with a common denominator or by converting them to decimals. For example, find the larger of $^{7}/_{8}$ and $^{4}/_{5}$:
- using common denominators:
  $^{7}/_{8}$ is $^{35}/_{40}$, $^{4}/_{5}$ is $^{32}/_{40}$, so $^{7}/_{8}$ is larger.
- using decimals:
  $^{7}/_{8}$ is 0.875, $^{4}/_{5}$ is 0.8, so $^{7}/_{8}$ is larger.

Use equivalent fractions or decimals to position fractions on a number line. For example:
- Mark fractions such as $^{2}/_{5}$, $^{6}/_{20}$, $^{3}/_{15}$, $^{18}/_{12}$ on a number line graduated in tenths, then on a line graduated in hundredths.

Answer questions such as:
- Which is greater, 0.23 or $^{3}/_{16}$?
- Which fraction is exactly half way between $^{3}/_{5}$ and $^{5}/_{7}$?

As outcomes, Year 9 pupils should, for example:

Know that a recurring decimal is an exact fraction.
Know and use simple conversions for recurring decimals to fractions. For example:
- 0.333 333… = $^{1}/_{3}$ (= $^{3}/_{9}$)
- 0.666666… = $^{2}/_{3}$
- 0.111111… = $^{1}/_{9}$
- 0.999999… = $^{9}/_{9}$ = 1

Convert recurring decimals to fractions in simple cases, using an algebraic method. For example:

- z = 0.333 333… (1)
  10z = 3.333 333… (2)
  Subtracting (1) from (2) gives:
  9z = 3
  z = $^{1}/_{3}$

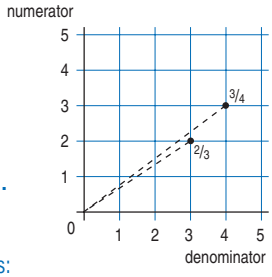
- Comment on:
  z = 0.999 999…
  10z = 9.999 999…
  9z = 9
  z = 1

Order fractions.
Answer questions such as:
- The numbers $^{1}/_{2}$, a, b, $^{3}/_{4}$ are in increasing order of size. The differences between successive numbers are all the same. What is the value of b?
- z is a decimal with one decimal place. Write a list of its possible values, if both these conditions are satisfied:
  $^{1}/_{3}$ < z < $^{2}/_{3}$ $^{1}/_{6}$ < z < $^{5}/_{6}$

Link to inequalities (pages 112–13).

Order fractions by graphing them.
Compare gradients.

Link to gradients (page 167–9).



Investigate sequences such as:

$\frac{1}{2}, \frac{2}{3}, \frac{3}{4}, \frac{4}{5}, \ldots, \frac{n}{n+1}$

Investigate what happens as the sequence continues and n tends towards infinity.
Convert the fractions to decimals or draw a graph of the decimal against the term number.