Pupils should be taught to:

Consolidate and extend mental methods of calculation, accompanied where appropriate by suitable jottings (continued)

As outcomes, Year 7 pupils should, for example:

Recall of fraction, decimal and percentage facts

Know or derive quickly:

- simple decimal/fraction/percentage equivalents, such as:
  $\frac{1}{4}$ = 0.25 or 25% 0.23 is equivalent to 23%
  $\frac{7}{10}$ = 0.7 or 70% 57% is equivalent to 0.57 or $\frac{57}{100}$
- simple addition facts for fractions, such as:
  $\frac{1}{4} + \frac{1}{4} = \frac{1}{2}$ $\frac{1}{4} + \frac{1}{2} = \frac{3}{4}$
- some simple equivalent fractions for $\frac{1}{4}$ and $\frac{1}{2}$, such as:
  $\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8} = \frac{5}{10} = \frac{50}{100}$
  $\frac{1}{4} = \frac{2}{8} = \frac{3}{12} = \frac{4}{16} = \frac{5}{20} = \frac{25}{100}$

Strategies for finding equivalent fractions, decimals and percentages

For example:

- Convert $\frac{1}{8}$ into a decimal.
  (Know that $\frac{1}{4}$ = 0.25 so $\frac{1}{8}$ is 0.25 ÷ 2 = 0.125.)
- Express $\frac{3}{5}$ as a percentage.
  (Know that $\frac{3}{5} = \frac{6}{10}$ or $\frac{60}{100}$, so it is equivalent to 60%.)
- Express 23% as a fraction and as a decimal.
  (Know that 23% is equivalent to $\frac{23}{100}$ or 0.23.)
- Express 70% as a fraction in its lowest terms.
  (Know that 70% is equivalent to $\frac{70}{100}$, and cancel this to $\frac{7}{10}$.)

Use known facts such as $\frac{1}{5}$ = 0.2 to convert fractions to decimals mentally. For example:

$\frac{3}{5}$ = 0.2 × 3 = 0.6

Find simple equivalent fractions.
For example:

- State three fractions equivalent to $\frac{3}{5}$, such as:
  $\frac{6}{10}$, $\frac{30}{50}$, $\frac{24}{40}$
- Fill in the boxes:
  $\frac{3}{4} = \frac{\square}{8} = \frac{\square}{12} = \frac{\square}{16} = \frac{\square}{20}$
  $\frac{7}{\square} = \frac{21}{30}$

Strategies for calculating fractions and percentages of whole numbers and quantities. For example:

- $\frac{1}{8}$ of 20 = 2.5 (e.g. find one quarter, halve it)
- 75% of 24 = 18 (e.g. find 50% then 25% and add the results)
- 15% of 40 (e.g. find 10% then 5% and add the results)
- 40% of 400 kg (e.g. find 10% then multiply by 4)

- 60 pupils go to the gym club.
  25% of them are girls.
  How many are boys?

See Y456 examples (pages 24–5, 32–3).

Link to finding fractions and percentages of quantities