

CALCULATIONS

Pupils should be taught to:

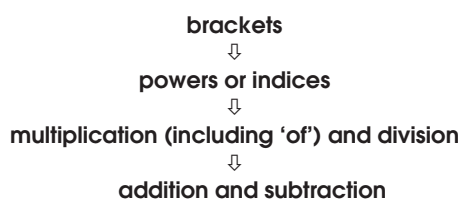
Know and use the order of operations, including brackets

As outcomes, Year 7 pupils should, for example:

Use, read and write, spelling correctly: order of operations, brackets...

Know the conventions that apply when evaluating expressions:

- Contents of brackets are evaluated first.
- In the absence of brackets, multiplication and division take precedence over subtraction and addition.
- A horizontal line acts as a bracket in expressions such as $\frac{5+6}{2}$ or $\frac{a+b}{5}$.



- With strings of multiplications and divisions, or strings of additions and subtractions, and no brackets, the convention is to work from left to right, e.g.
 $12 \div 4 \div 2 = 1.5$, not 6.

Calculate with mixed operations. For example:

- Find mentally or use jottings to find the value of:
 - a. $16 \div 4 + 8 = 12$
 - b. $16 + 8 \div 4 = 18$
 - c. $14 \times 7 + 8 \times 11 = 186$
 - d. $\frac{100}{4 \times 5} = 5$
 - e. $32 + 13 \times 5 = 97$
 - f. $(3^2 + 4^2)^2 = 625$
 - g. $(5^2 - 7) / (2^2 - 1) = 6$
- Use a **calculator** to calculate with mixed operations, e.g.
 $(32 + 13) \times (36 - 5) = 1395$
- In algebra recognise that, for example, when $a = 4$,
 $3a^2 = 3 \times 4^2 = 3 \times 16 = 48$

[Link to calculator methods \(pages 108–9\), order of algebraic operations \(pages 114–15\), and substitution in expressions and formulae \(pages 138–41\).](#)