



Hot water tank: formulae – Teacher notes

Activity description

In this activity students learn to:

- substitute values into formulae
- use a calculator to evaluate expressions.

Suitability

Level 2 (Higher/Intermediate)

Time

1–2 hours

Resources and equipment

Student activity sheets, scientific calculators, slideshow

Key mathematical language

Formula, constant, variable, bracket, power, root.

Notes on the activity

Students need to be able to use a calculator to evaluate expressions involving brackets, powers and roots.

During the activity

The accompanying slideshow can be used for class discussion about formulae and to go through examples, including those on the student information sheet, before students try some themselves. This slideshow can be adapted to include more or fewer examples.

Points for discussion

Discussion questions are included as ‘Think abouts’ on the slideshow and student information sheet. These will provide opportunities of discussing sensible rounding, the order in which calculators work out values, the most efficient way of using calculators and so on.

The final slide and the last section on the student sheets give questions you can use to help students reflect on the work they have done.

Extensions

The questions are arranged in order of difficulty.

Able students could start at question 10 and work backwards if you are limited for time.

Less able students may not attempt all questions.

Answers (to 3 sf)

- 1 377 cm³
- 2 32.8 m s⁻¹
- 3 11.5 m
- 4 191 °C
- 5 31.3 m s⁻¹
- 6 235 m
- 7 1.42 seconds
- 8 16.1 %
- 9 98.2 cm²
- 10 262 cm²