

Even though many calculations can be done quickly and effectively on a calculator, often an estimate for an answer can be a useful check. This is done by rounding each of the numbers in such a way that the calculation becomes relatively straightforward.

Worked examples

- a) Estimate the answer to 57×246 .
Here are two possibilities:
i) $60 \times 200 = 12\,000$,
ii) $50 \times 250 = 12\,500$.
- b) Estimate the answer to $6386 \div 27$.
 $6000 \div 30 = 200$.

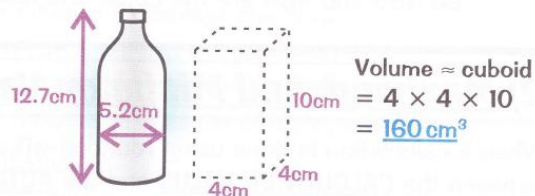
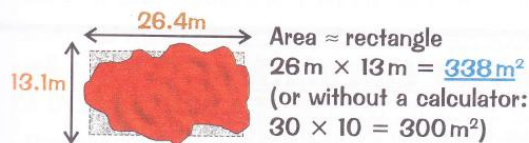
Exercises

- Calculate the following, giving your answer to an appropriate degree of accuracy:
a) 23.456×17.89 b) 0.4×12.62 c) 18×9.24
d) $76.24 \div 3.2$ e) 7.6^2 f) 16.42^3
g) $\frac{2.3 \times 3.37}{4}$ h) $\frac{8.31}{2.02}$ i) $9.2 \div 4^2$
- Without using a calculator, estimate the answers to the following:
a) 62×19 b) 270×12 c) 55×60
d) 4950×28 e) 0.8×0.95 f) 0.184×475
- Without using a calculator, estimate the answers to the following:
a) $3946 \div 18$ b) $8287 \div 42$ c) $906 \div 27$
d) $5520 \div 13$ e) $48 \div 0.12$ f) $610 \div 0.22$
- Without using a calculator, estimate the answers to the following:
a) $78.45 + 51.02$ b) $168.3 - 87.09$ c) 2.93×3.14
d) $84.2 \div 19.5$ e) $\frac{4.3 \times 752}{15.6}$ f) $\frac{(9.8)^3}{(2.2)^2}$
- Using estimation, identify which of the following are definitely incorrect. Explain your reasoning clearly.
a) $95 \times 212 = 20\,140$
b) $44 \times 17 = 748$
c) $689 \times 413 = 28\,457$
d) $142\,656 \div 8 = 17\,832$
e) $77.9 \times 22.6 = 2512.54$
f) $\frac{84.2 \times 46}{0.2} = 19\,366$

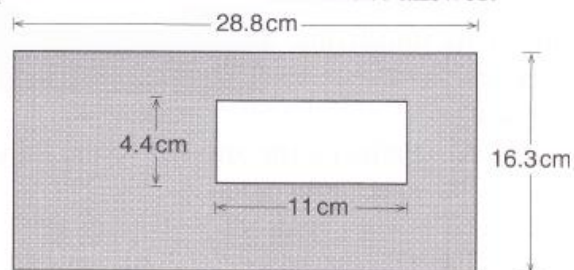
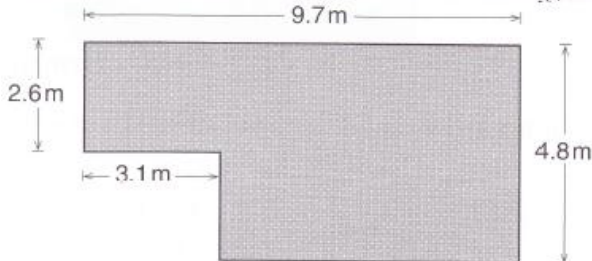
Areas and Volumes

- 1) Draw or imagine a **RECTANGLE OR CUBOID** of similar size to the object.
- 2) **ROUND OFF** all lengths to the **NEAREST WHOLE**, and work it out — easy.

EXAMPLES: "Estimate the area of this shape and the volume of the bottle:"



Estimate the shaded areas of the following shapes. Do *not* work out an exact answer.



Estimate the volume of each of the solids below. Do *not* work out an exact answer.

