

Substituting into Formulae

Starter

1. **(Review of last lesson)** Given that $v = u + at$, find v when $u = 30$, $a = -9.8$ and $t = 2$.

Working: $v = u + at = 30 + (-9.8) \times 2 = 30 - 19.6 = 10.4$

2. **(Review of last lesson)** Given that $T = 2\pi\sqrt{\frac{l}{10}}$, find T when $l = 16$ m.

Working: $T = 2\pi\sqrt{\frac{l}{10}} = 2\pi\sqrt{\frac{16}{10}} = 7.95$

- E.g. 1** Given that the volume of a cone is $\frac{\pi r^2 h}{3}$, find the volume when $r = 6$ and $h = 4$. Give your answer to 1 d.p..

Working: Volume of cone = $\frac{\pi r^2 h}{3} = \frac{\pi \times 6^2 \times 4}{3} = 150.8$

- E.g. 2** Celsius and Fahrenheit are connected by the formulae, $C = \frac{5}{9}(F - 32)$. Find the temperature in Celsius when the temperature is 156°F . Give your answer to 3 s.f..

Working: $C = \frac{5}{9}(F - 32) = \frac{5}{9}(156 - 32) = 68\frac{8}{9} = 68.9^\circ\text{C}$

- E.g. 3*** Let $y = 4x + 3$ and $x = 6 - 7t$. Express y in terms of t .

Working: $y = 4x + 3 = 4(6 - 7t) + 3 = 24 - 28t + 3 = 27 - 28t$

Video: [Substituting into formulae](#)

[Solutions to Starter and E.g.s](#)

Exercise

9-1 class textbook:	p98 M4.2 Qu 1-12
A*-G class textbook:	p90 M4.2 Qu 1-12
9-1 homework book:	p33 M4.2 Qu 1-8
A*-G homework book:	p25 M4.2 Qu 1-8