Solutions

2.1

- subtract 2 from both sides: $y - 2 = 3x$
- divide by 3: $\boldsymbol{x = \dfrac{y-2}{3}}$

2.2

- subtract u: $v - u = at$
- divide by t: $\boldsymbol{a = \dfrac{v-u}{t}}$

2.3

- divide both sides by 2π: $\boldsymbol{r = \dfrac{C}{2\pi}}$

2.4

- multiply by 3: $3V = \pi r^2 h$
- divide by πr^2: $\boldsymbol{h = \dfrac{3V}{\pi r^2}}$

2.5

- divide by π: $r^2 = \dfrac{A}{\pi}$
- square-root: $\boldsymbol{r = \sqrt{\dfrac{A}{\pi}}}$

3.1

(a)

- subtract 32: $F - 32 = \dfrac{9C}{5}$
- multiply by 5, then divide by 9: $\boldsymbol{C = \dfrac{5(F-32)}{9}}$

(b)

- $C = \dfrac{5(F-32)}{9} = \dfrac{5 \times (77-32)}{9} = \dfrac{5 \times 45}{9} = \mathbf{25}$

3.2

- ut means $u \times t$, so she must **divide** by u, not subtract it
- $s - 5 = ut$, so $\boldsymbol{t = \dfrac{s-5}{u}}$

3.3

- subtract $2as$: $u^2 = v^2 - 2as$
- square-root: $\boldsymbol{u = \sqrt{v^2 - 2as}}$

3.4

- collect the x-terms on the left and the rest on the right: $px - rx = 7 + q$
- factorise: $x(p - r) = 7 + q$
- $\boldsymbol{x = \dfrac{q+7}{p-r}}$

3.5

- multiply both sides by a: $a + 2 = ab$
- collect the a-terms: $2 = ab - a = a(b - 1)$
- $\boldsymbol{a = \dfrac{2}{b-1}}$