

Solutions

Each answer shows the steps, then the **result**.

2.1

- $a_c = \frac{v^2}{r} = \frac{4.0^2}{2.0} = 8.0 \text{ m s}^{-2}$

2.2

- friction (between the tyres and the road)

2.3

- $F_c = ma_c = 0.50 \times 8.0 = 4.0 \text{ N}$

2.4

- $f = \frac{1}{T} = \frac{1}{0.25} = 4.0 \text{ Hz}$

3.1 C

3.2 C

- $a_c \propto v^2$

3.3

(a)

- $a_c = \frac{3.0^2}{0.50} = 18 \text{ m s}^{-2}$

(b)

- $F_c = ma_c = 0.20 \times 18 = 3.6 \text{ N}$