Ex 8

Q1 (a) $A = \pi (3.7)^2 \approx 43.0 \text{ cm}^2$ to 1 dp

(b) $u = \frac{(43.8)(23.4)}{43.8 - 23.4} \approx 50.24$ to 2 dp

(c) $f = \frac{1}{2(0.503)} \sqrt{\frac{9.8}{0.00032}} \approx 173.96$ to 2 dp

(d) $27.32 = y^3$

$y = \sqrt[3]{27.32} \approx 3.012$ to 3 dp

(e) $A = \pi (5.2)^2 + 2\pi (5.2)(11.47) \approx 459.7$ to 1 dp

Q2 (a) $479357 \approx 479400$

(b) $1.3274 \approx 1.33$

(c) $57.321 \approx 57.32$

(d) $6.023 \approx 6.0$

(e) $0.0005734 \approx 0.000573$

Q3

$T = 2(3.14)\sqrt{\frac{38.6}{9.8}} \approx 2(3)\sqrt{\frac{39}{10}} \approx 6\sqrt{3.9} \approx 6(2)$

≈ 12

Q4

$60 \times 50 = 3000$

$61 \times 49 = 2989$ ⊖

11

$\left(\frac{11}{2989} \times 100\right)\% = 0.37\%$ to 2 dp

2.5 Average rate of change

$$= \frac{Q_2 - Q_1}{t_2 - t_1} = \text{slope}$$

Eg 14 $Q = t^2 + 2t - 1$

$t = 2 \quad Q = 2^2 + 2(2) - 1 = 7$

$t = 5 \quad Q = 5^2 + 2(5) - 1 = 34$

Avg rate of change $= \frac{34 - 7}{5 - 2} = \frac{27}{3} = 9$

Speed & Acceleration

$$\text{Speed} = v = \frac{\Delta \text{dis}}{\Delta \text{time}}$$

$$\text{Acc} = a = \frac{\Delta \text{Speed}}{\Delta \text{time}}$$

Eg 15

(a) $AS = \frac{\text{Dis}}{\text{Time}} = \frac{}{(8 \times 60) - (3 \times 60)} = \frac{3200 - 450}{480 - 180} = \frac{2750}{300}$

$= 9.17 \text{ m/s}$

(b) $AC = \frac{\text{Dis}}{\text{Time}} = \frac{}{(9 \times 60) - (5 \times 60)} = \frac{4050 - 1250}{540 - 340} = \frac{2800}{240}$

$= 11.67 \text{ m/s}$