HSC Mathematics Extension 1 2003
Quick Answers

Disclaimer

These answers are intended as a quick guide only. To save space there are no proofs or diagrams. For greater detail please refer to fully worked solutions.

Question 1

(a) $\left(-1, 4\tfrac{1}{2}\right)$.

(b) $x < 2$ or $x \geq 5$.

(c) $\dfrac{3}{2}$.

(d) $y = 12x^2$.

(e) $\dfrac{6}{25}$.

Question 2

(a) Domain: $-\tfrac{1}{2} \leq x \leq \tfrac{1}{2}$
Range: $0 \leq y \leq 3\pi$.

(b) $\dfrac{x}{1+x^2} + \tan^{-1} x$.

(c) $\dfrac{\pi}{4}$.

(d) 80.

(e) (i) $\sqrt{2}\cos\left(x + \dfrac{\pi}{4}\right)$

Question 3

(a) 30 240.

(b) (ii) 4.
(iii) $t = \dfrac{\pi}{3}$.

(c) (ii) 0.1779 (4 d.p.)

Question 4

(a) 3003.

(b) 1.496

(c) 13.

Question 5

(a) $\dfrac{1}{12}\sin 6x + \dfrac{1}{2}x + c$.

(b) (iii) $x \geq 1$.
(iv) $g^{-1}(x) = 2 - \sqrt{x-1}$.

(c) (iii) 500°C.

Question 6

(a) (ii) $\dfrac{\pi}{16}$ seconds.

(b) (i) $\alpha = \tan^{-1}\left(\dfrac{1}{p}\right)$ and $\beta = \tan^{-1}\left(\dfrac{1}{q}\right)$.

(iv) $2 - \sqrt{2}$ units^2.

Question 7

(a) 2799 m, 250°.

© pasthsc.com.au