HSC Mathematics Extension 1 2001
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) $\frac{\pi}{6}$.
(b) $\sin^2 x + 2x \sin x \cos x$.
(c) 56.
(d) $(-5,9)$.
(e) Yes.
(f) -4.

Question 2

(a) 6a+1.

(b) (i) $\ln\left(1+e^x\right)+c$.
(ii) $\frac{\pi}{2}$.

(c) (i) 181 440.
(ii) 1440.

(d) 84.

Question 3

(a) 1.26

(b) (i) $\angle AOB = 2\theta$

(c) (ii) $\theta = 0, \frac{\pi}{6}, \frac{5\pi}{6}, \pi, \frac{7\pi}{6}, \frac{11\pi}{6}, 2\pi$.

Question 4

(a) $-1 \le x \le 2$.

(b) 200 m/s.

(c) $x = 6\cos\left(2t + \frac{\pi}{3}\right)$.
(other equivalent answers possible)

Question 5

(a) (i) π.

(ii) $y = 3\cos\left(\frac{x}{2}\right)$.
Domain: $0 \le x \le 2\pi$.

(iii) 6 units^2.

(b) n odd: $2p^n$.
n even: $2nqp^{n-1}$.

(c) (i) ${}^nC_r\left(\frac{1}{6}\right)^r\left(\frac{5}{6}\right)^{n-r}$

Question 6

(b) (ii) $\left(-\frac{2a}{t}, \frac{a}{t^2}\right)$.

(iv) $x^2 = ay - 3a^2$.

Question 7

(a) (ii) $x = 1 - e^{-t}$.

© pasthsc.com.au