

O level A maths suggested answer Paper 1

1 (i)  $\tan \theta = \frac{\sqrt{1-c^2}}{c}$

(ii)  $\operatorname{cosec} \theta = \frac{1}{\sqrt{1-c^2}}$

2  $-1 < k < 1$

3  $A = \frac{1}{6}, B = -\frac{1}{3}$

4  $\frac{dx}{dt} = -\frac{2}{5} \text{ cm/s}$

5 (ii) 99

(iii) -0.236

7 (i)  $64 - 24x + \frac{15}{4}x^2 + \dots$

(ii)  $k = \frac{17}{40}$

8 (i)  $\frac{dy}{dx} = 1 - \frac{9}{(x-2)^2}$

$$\frac{d^2y}{dx^2} = \frac{18}{(x-2)^3}$$

(ii)  $x = 5$  or  $x = -1$

(iii) At  $x = 5$ , the stationary point is a minimum  
At  $x = -1$ , the stationary point is a maximum.

9 (ii)  $C = (4, -2)$

(iii)  $D = (7, 5)$

10 (a)  $x = -\frac{1}{2}, y = 1\frac{1}{2}$

(b)  $11 - 4\sqrt{7}$

11 (i)  $t = 3$  or  $t = 1$

(ii)  $-6 \text{ cm/s}^2$

(iv) 12 m