

Question 3

$$a) = \frac{1}{x+4} \quad \text{get } \frac{d}{dx} [\ln(x+4)]_0^1 = 1.61 - 1.39 = 0.22$$

$$b) \text{ sub \#s } 18600 = k \cdot 70^{2/3} \quad 18600 = k \cdot 16.98 \quad k = \frac{18600}{16.98} = 1095.1$$

$$\therefore S = 1095.1 \cdot 60^{2/3}$$

$$S = 16783.47 \text{ cm}^2$$

$$c) i) \ln(x^2-4) \quad y' = 2x \ln(x^2-4)$$

$$ii) \frac{x}{e^x} \quad y' =$$

$$d) \text{ ~~A = B^2 + C^2 - 2BC \cos \theta~~ } \quad A^2 = B^2 + C^2 - 2BC \cos \theta \quad C = x$$

$$13^2 = 7^2 + x^2 - 2 \cdot 7 \cdot x \cos 60$$

$$164 = 49 + x^2 - 7x$$

$$120 = x^2 - 7x$$

$$x^2 - 7x - 120 = 0$$

$$\begin{array}{l} x \quad -15 \\ x \quad 8 \end{array}$$

$$(x-15)(x+8) \quad \therefore x > 15, -8 \leftarrow \text{no neg distance}$$

$$\therefore \underline{x = 15}$$