



### QUESTION 3.

a) Evaluate  $\int_0^1 \frac{dx}{x+4}$ .

$$= \int_0^1 \frac{1}{x+4} dx.$$

$$= \left( \frac{1}{x+4} \right) - \left( \frac{1}{0+4} \right)$$

$$= \frac{1}{5} - \frac{1}{4}$$

$$= -\frac{1}{20}.$$

b)  $S = KM^{2/3}$

$$18600 = K70^{2/3}$$

$$\frac{18600}{17} = K \left( \frac{17}{17} \right) \quad (\text{to 0.d.p.})$$

$$K = 1094^{2/17}.$$

when  $K = 1094^{2/17}$   $M = 60\text{kg}$

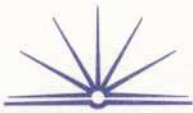
$$S = 1094^{2/17} (60)^{2/3}.$$

$$= 1094^{2/17} (15.3) \quad (\text{c1.d.p.})$$

$$= 16,768.7 \text{ cm}^2 \quad (\text{1.d.p.})$$

$\therefore$  surface Area of a 60kg person is

$$16,768.7 \text{ cm}^2.$$



c) i) differentiate

$$\ln(x^2 - 9)$$

$$= \ln(x^2 - 9) \cdot 2x$$

$$= 2x(x^2 - 9)$$

ii)  $\frac{x}{e^{3x}}$

$$= \frac{1}{xe}$$

d)



Cosine Rule.

~~A = \cos^{-1} \left( \frac{7^2 + 13^2 - x^2}{2 \cdot 7 \cdot 13} \right)~~