

INTEGRATION (Q 8, PAPER 1)

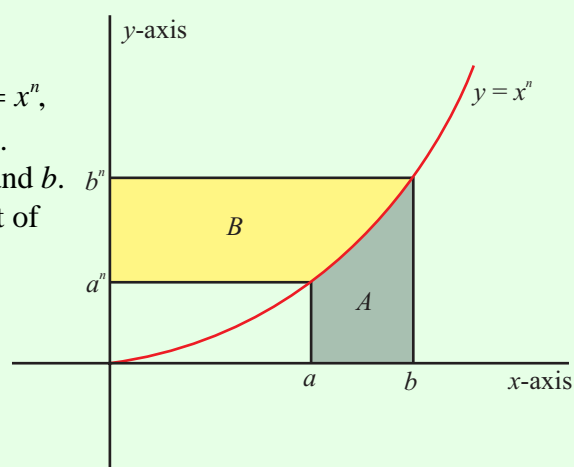
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8 (a) (i) $\int \frac{1}{x^2} dx$ (ii) $\int (2x-1)^2 dx$.

(b) (i) $\int_0^2 \frac{dt}{\sqrt{4-t^2}}$ (ii) $\int_0^{\frac{\pi}{3}} \sin 2\theta \cos \theta d\theta$.

(c) (i) Calculate $\int_0^{\ln \sqrt{3}} \frac{e^x}{1+e^{2x}} dx$ to three places of decimals.

(ii) A is the area between the curve $y = x^n$, the x -axis and the lines $x = a$, $x = b$. Calculate the area A in terms of a and b . B is the area between the same part of the curve and the y -axis. Determine the ratio Area B : Area A .



ANSWERS

8 (a) (i) $-\frac{1}{x} + c$ (ii) $\frac{4}{3}x^3 - 2x^2 + x + c$

(b) (i) $\frac{\pi}{2}$ (ii) $\frac{7}{12}$

(c) (i) $\frac{\pi}{12} = 0.262$ (ii) $\frac{b^{n+1} - a^{n+1}}{n+1}, n:1$