

INTEGRATION (Q 8, PAPER 1)

2002

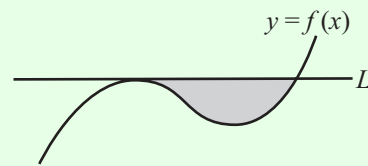
8 (a) Find  $\int (x^3 + \sqrt{x} + 2) dx$ .

8 (b) Evaluate (i)  $\int_2^7 \frac{2x-4}{x^2-4x+29} dx$       (ii)  $\int_2^7 \frac{1}{x^2-4x+29} dx$ .

8 (c) Let  $f(x) = x^3 - 3x^2 + 5$ .

$L$  is the tangent to the curve  $y = f(x)$  at its local maximum point.

Find the area enclosed between  $L$  and the curve.



ANSWERS

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

8 (b) (i)  $\ln 2$       (ii)  $\frac{\pi}{20}$

8 (c)  $\frac{27}{4}$