

**INTEGRATION (Q 8, PAPER 1)**

**1998**

8 (a) Find (i)  $\int (x^2 + 3) dx$  (ii)  $\int \frac{1}{x^2} dx$ .

(b) Evaluate (i)  $\int_2^3 \frac{x-2}{x^2-4x+5} dx$  (ii)  $\int_0^{\frac{\pi}{4}} (\cos x + \sin x)^2 dx$

(c) Find the area of the bounded region enclosed by the line  $y = 2x - 1$ , the line  $x = 4$  and the curve  $y = \frac{1}{x}$ , where  $x > 0$ .

**ANSWERS**

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

(b) (i)  $\frac{1}{2} \ln 2$  (ii)  $\frac{\pi}{4} + \frac{1}{2}$

(c)  $12 - \ln 4$