

1 Integrate the following:

(a) $\int (1-x)dx$

(b) $\int (3x^2 + 4x + 5)dx$

(c) $\int (1-3x)^2 dx$

(d) $\int \left(x - \frac{1}{x}\right)^2 dx$

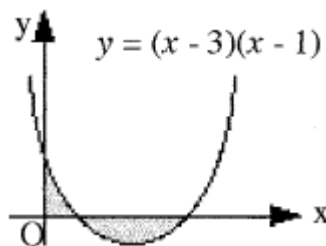
(e) $\int \frac{x^2 + 2}{\sqrt{x}} dx$

2 Find the particular solution of the differential equation $\frac{dy}{dx} = 3x^2 - 10x$, given $(-1,0)$.

3 Evaluate $\int_1^3 \left(x^2 - \frac{1}{x^2}\right) dx$

4 Find the value of c if $\int_8^c x^{-\frac{2}{3}} dx = 3$.

5 Find the shaded area.



6 (a) Sketch the following pair of curves on the same diagram.

$$y = x^2 - 2x \text{ and } y = 6x - x^2$$

(b) Calculate the area of the region enclosed by the curves.