## Area Between two Curves

- 1. The diagram opposite shows the curve  $y = 4x x^2$  and the line y = 3.
  - (a) Find the coordinates of A and B.
  - (b) Calculate the shaded area.

2. The curves with equations  $y = x^2$  and  $y = 2x^2 - 25$  intersect at P and Q.

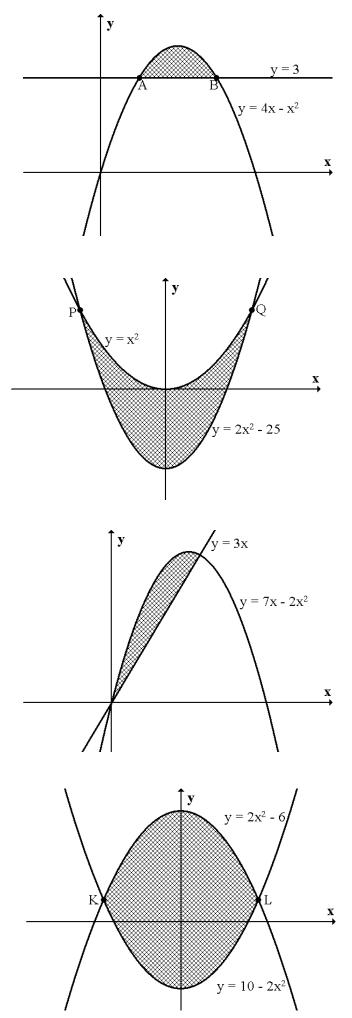
Calculate the area enclosed between the curves.

3. The diagram opposite shows the curve  $y = 7x - 2x^2$  and the line y = 3x.

Calculate the shaded area.

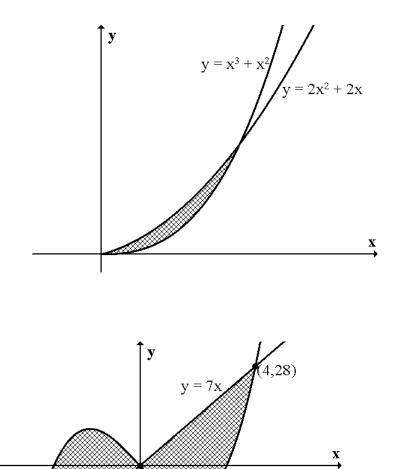
4. The curves with equations  $y = 2x^2 - 6$ and  $y = 10 - 2x^2$  intersect at K and L.

Calculate the area enclosed by these two curves.



5. The diagram opposite shows part of the curves  $y = x^3 + x^2$  and  $y = 2x^2 + 2x$ .

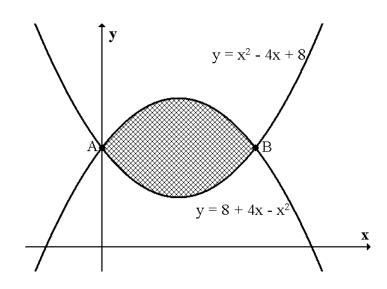
Calculate the shaded area.



= x(x - 3)(x + 3)

6. The curve y = x(x - 3)(x + 3) and the line y = 7x intersect at the points (0,0), (-4,-28) and (4,28).

Calculate the area enclosed by the curve and the line.



4,-28)

- 7. The parabolas  $y = x^2 4x + 8$  and  $y = 8 + 4x x^2$  intersect at A and B.
  - (a) Find the coordinates of A and B.
  - (b) Calculate the shaded area.

8. The diagram shows parts of the curves  $y = x^3 - 1$  and  $y = x^2 - 1$ .

Calculate the shaded area.

- у  $\mathbf{v} = \mathbf{x}^3$  $y = x^2 - 1$ у y = 2x х  $= x^3 - x^2 - 7x + 5$ = 3x - 5 у (6, 13)Х  $y = x^3 - 5x^2 - 5x + 7$ y = x(x+3). P(p,4) Q(q,1)y = 4y = x - 1x4
- 9. The curve  $y = x^3 x^2 7x + 5$  and the line y = 2x 4 are shown opposite.
  - (a) B has coordinates (1,-2). Find the coordinates of A and C.
  - (b) Hence calculate the shaded area.

- 10. The diagram shows the line y = 3x 5 and the curve  $y = x^3 5x^2 5x + 7$ .
  - (a) Find the coordinates of P and Q.
  - (b) Calculate the shaded area.

11. The diagram opposite shows an area enclosed by 3 curves:

$$y = x(x + 3), \quad y = \frac{4}{x^2} \text{ and } y = x - \frac{1}{4}x^2$$

- (a) P and Q have coordinates (p,4) and (q,1). Find the values of p and q.
- (b) Calculate the shaded area.