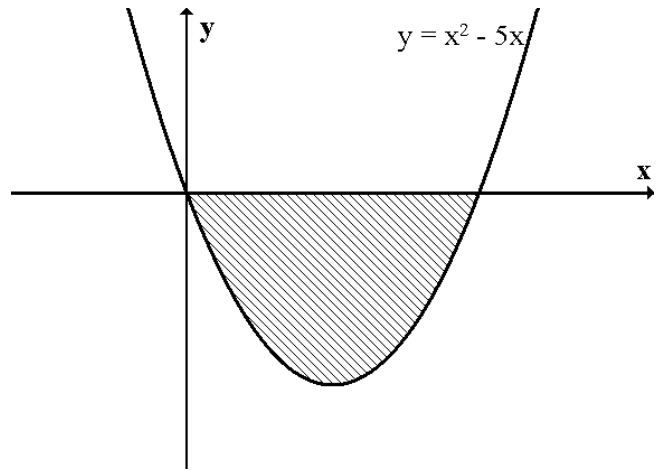# The Area under a Curve

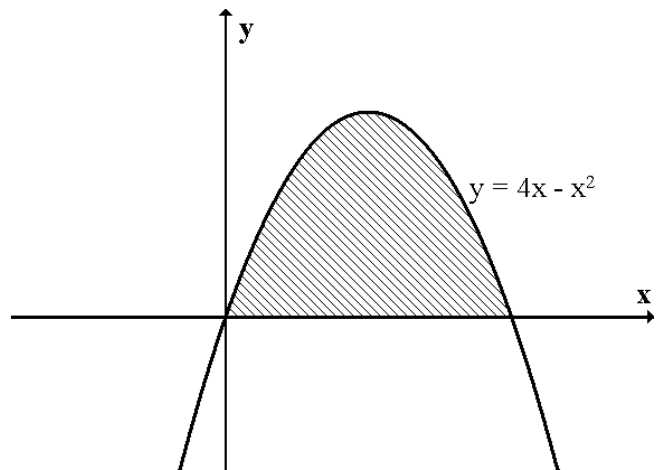1. The diagram opposite shows the graph of
   $y = x^2 - 5x$.

   Calculate the shaded area.
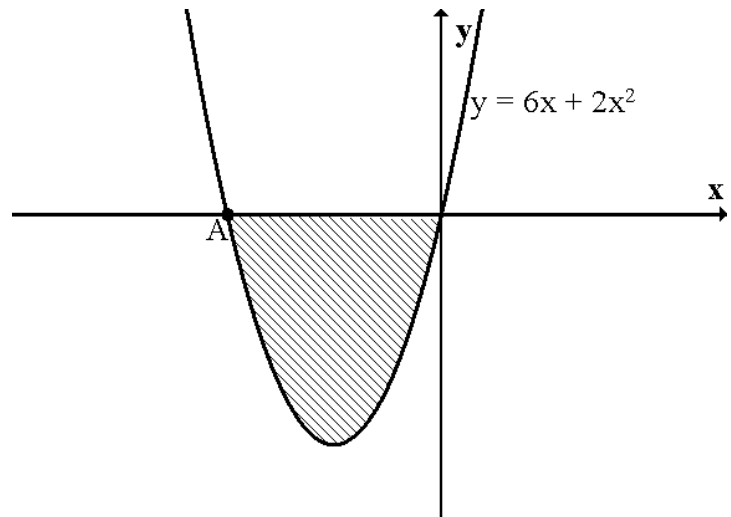
$$y = x^2 - 5x$$

2. The diagram shows the graph of
   $y = 4x - x^2$.

   Calculate the area between the
   curve and the x-axis.

$$y = 4x - x^2$$

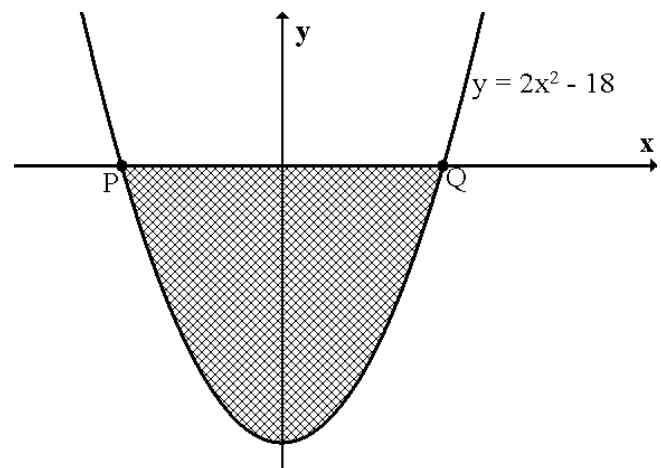3. The diagram shows part of the graph
   of $y = 6x + 2x^2$.

   (a) Find the coordinates of A.
   (b) Calculate the shaded area.

$$y = 6x + 2x^2$$

A
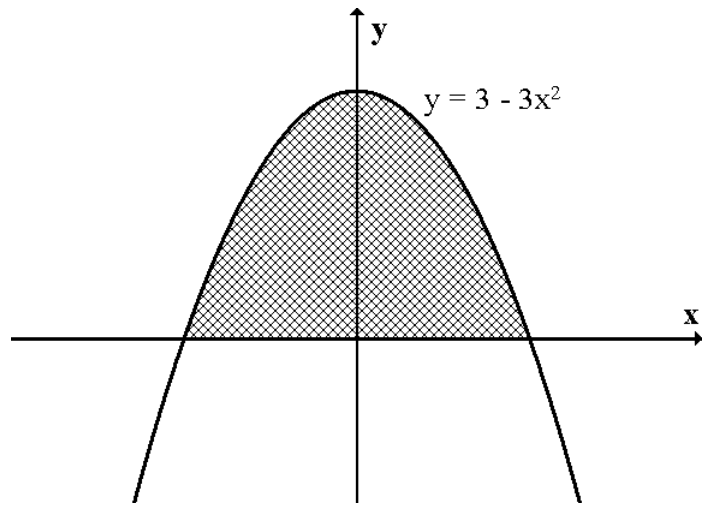
4. The dagram shows part of the graph of
   $y = 2x^2 - 18$.

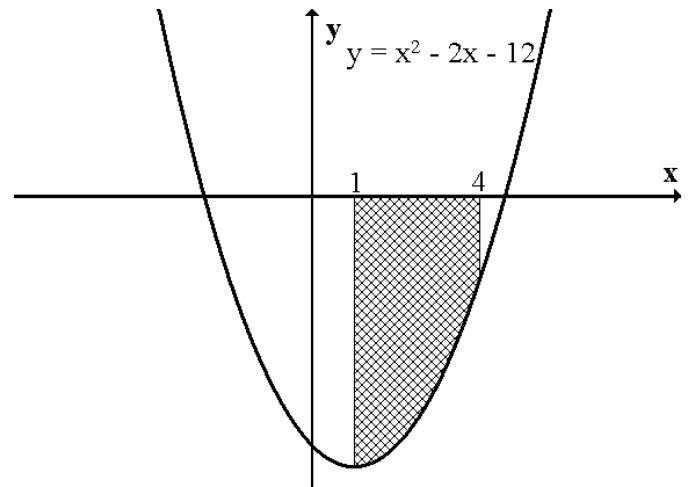   (a) Calculate the coordinates of P and Q.
   (b) Find the shaded area.

$$y = 2x^2 - 18$$

P          Q

5. The diagram shows part of the graph of
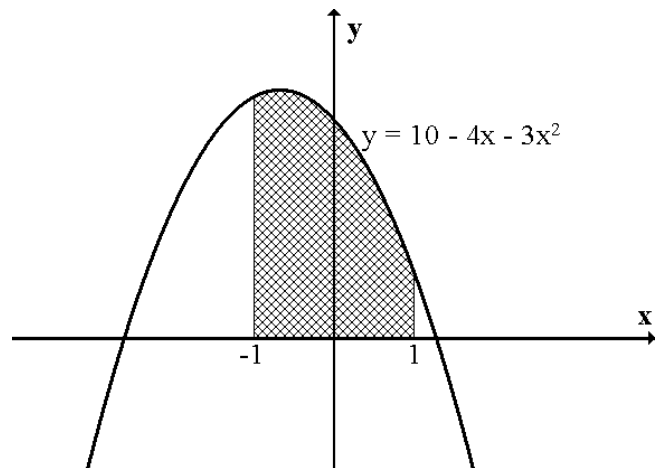   $y = 3 - 3x^2$.

   Calculate the shaded area.

   $y = 3 - 3x^2$

6. The diagram shows the graph of
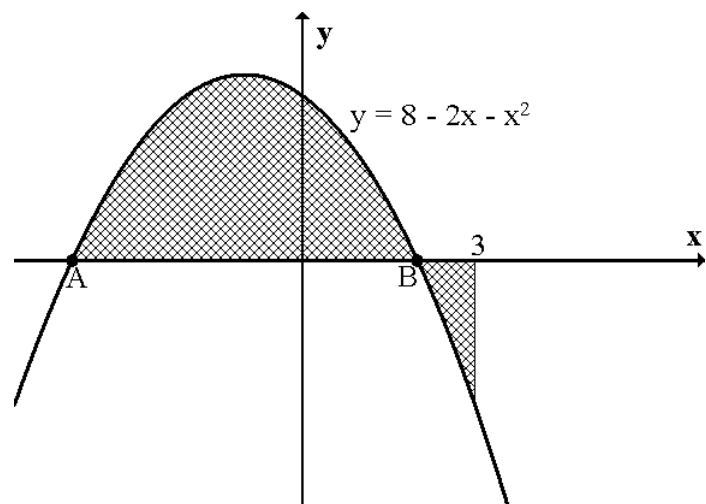   $y = x^2 - 2x - 12$.

   Calculate the shaded area.

   $y = x^2 - 2x - 12$

   1    4

7. The diagram shows part of the graph of
   $y = 10 - 4x - 3x^2$

   Calculate the shaded area.

   $y = 10 - 4x - 3x^2$
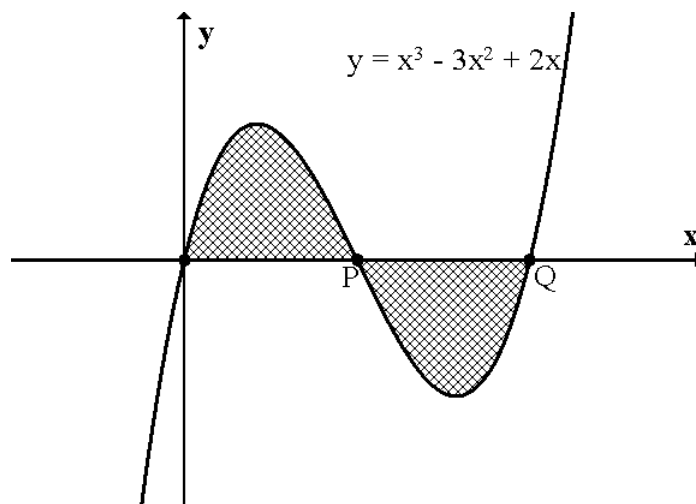
   -1    1

8. The diagram shows the graph of
   $y = 8 - 2x - x^2$.

   (a) Find the coordinates of A and B.
   (b) Calculate the shaded area.

   $y = 8 - 2x - x^2$

   A    B    3
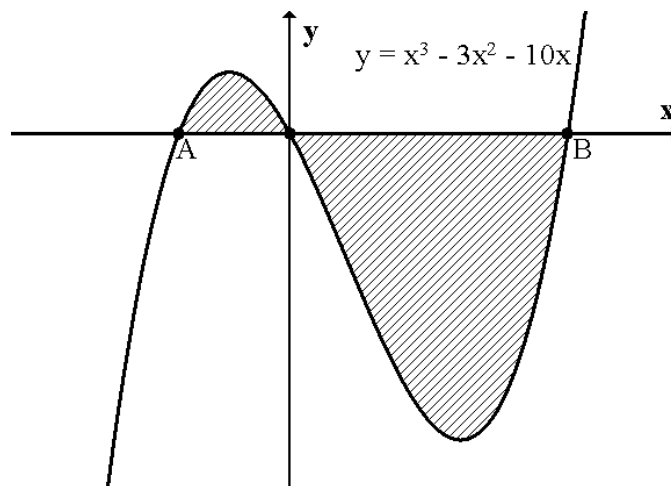
9. The diagram opposite shows part of the graph of $y = x^3 - 3x^2 + 2x$.

   (a) Find the coordinates of P and Q.
   (b) Calculate the shaded area.
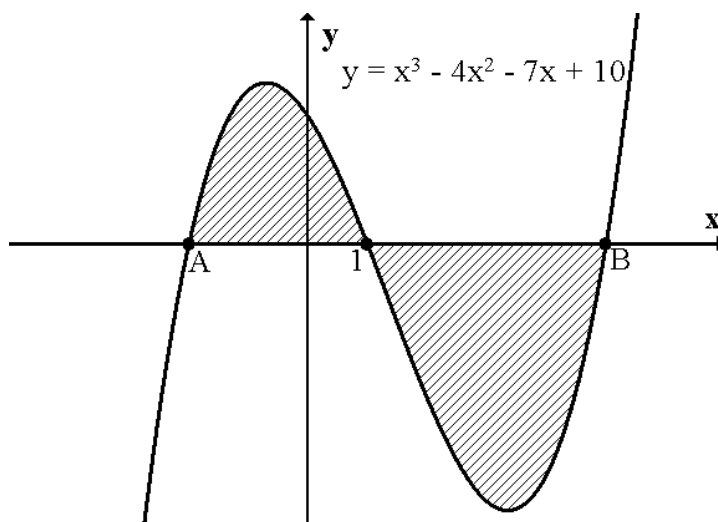
$y = x^3 - 3x^2 + 2x$

10. The diagram shows the graph of $y = x^3 - 3x^2 - 10x$.

    (a) Find the coordinates of A and B.
    (b) Calculate the shaded area.

$y = x^3 - 3x^2 - 10x$

11. The diagram shows the graph of $y = x^3 - 4x^2 - 7x + 10$.

    (a) Find the coordinates of A and B.
    (b) Calculate the shaded area.

$y = x^3 - 4x^2 - 7x + 10$

12. The diagram shows the graph of $y = x^4 - 5x^2 + 4$.

    Calculate the shaded area.

$y = x^4 - 5x^2 + 4$