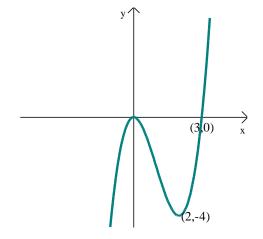
## **Graphs of Functions**

1. The graph of the function f(x) is shown. On separate diagrams sketch the graphs of

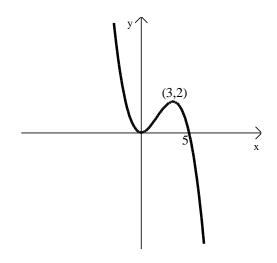


$$(ii) - f(x)$$



2. The diagram shows the graph of y = f(x).

Sketch the graph of y = 3 - f(x).

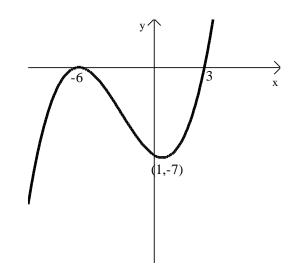


3. Part of the graph of y = g(x) is shown.

On separate diagrams sketch the graphs Of

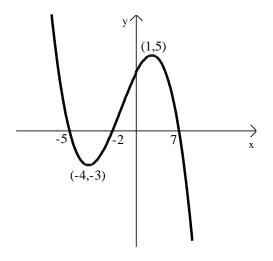
(i) 
$$y = -2g(x)$$
  
(ii)  $y = g(x - 4)$ 

(ii) 
$$v = \sigma(x - \Delta)$$



4. The graph of y = g(x) is shown.

Sketch the graph of y = -g(x - 2).

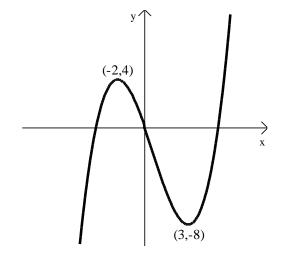


5. The graph of y = f(x) is shown.

On separate diagrams sketch the graphs of

(i) 
$$y = -\frac{1}{2}f(x) + 2$$

(ii) 
$$y = f(-x) - 2$$

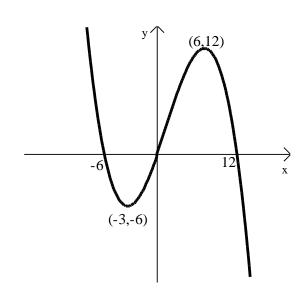


6. The graph of y = h(x) is shown.

On separate diagrams sketch the graphs of

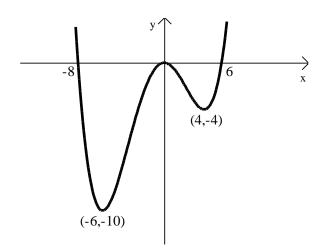
(i) 
$$y = 2h(-x)$$

(ii) 
$$y = h(3x) - 1$$



7. The diagram shows the graph of y = f(x).

Sketch the graph of  $y = f(\frac{1}{2}x) + 3$ .



- 8. (a)  $f(x) = x^2 + 4x + 7$ . Express f(x) in the form  $(x + a)^2 + b$ .
  - (b) Sketch the graph of y = f(x) showing its turning point and where it cuts the y-axis.
  - (c) Hence sketch the graph of y = -f(x) + 3.
- 9. (a)  $f(x) = x^2 6x + 1$ . Express f(x) in the form  $(x a)^2 b$ .
  - (b) Sketch the graph of y = f(x).
  - (c) Hence sketch the graph of y = f(-x) 2.
- 10. (a)  $f(x) = 2x^2 + 8x 3$ . Express f(x) in the form  $a(x + b)^2 + c$ 
  - (b) Sketch the graph of y = f(x).
  - (c) Hence sketch the graph of y = -f(x 2).