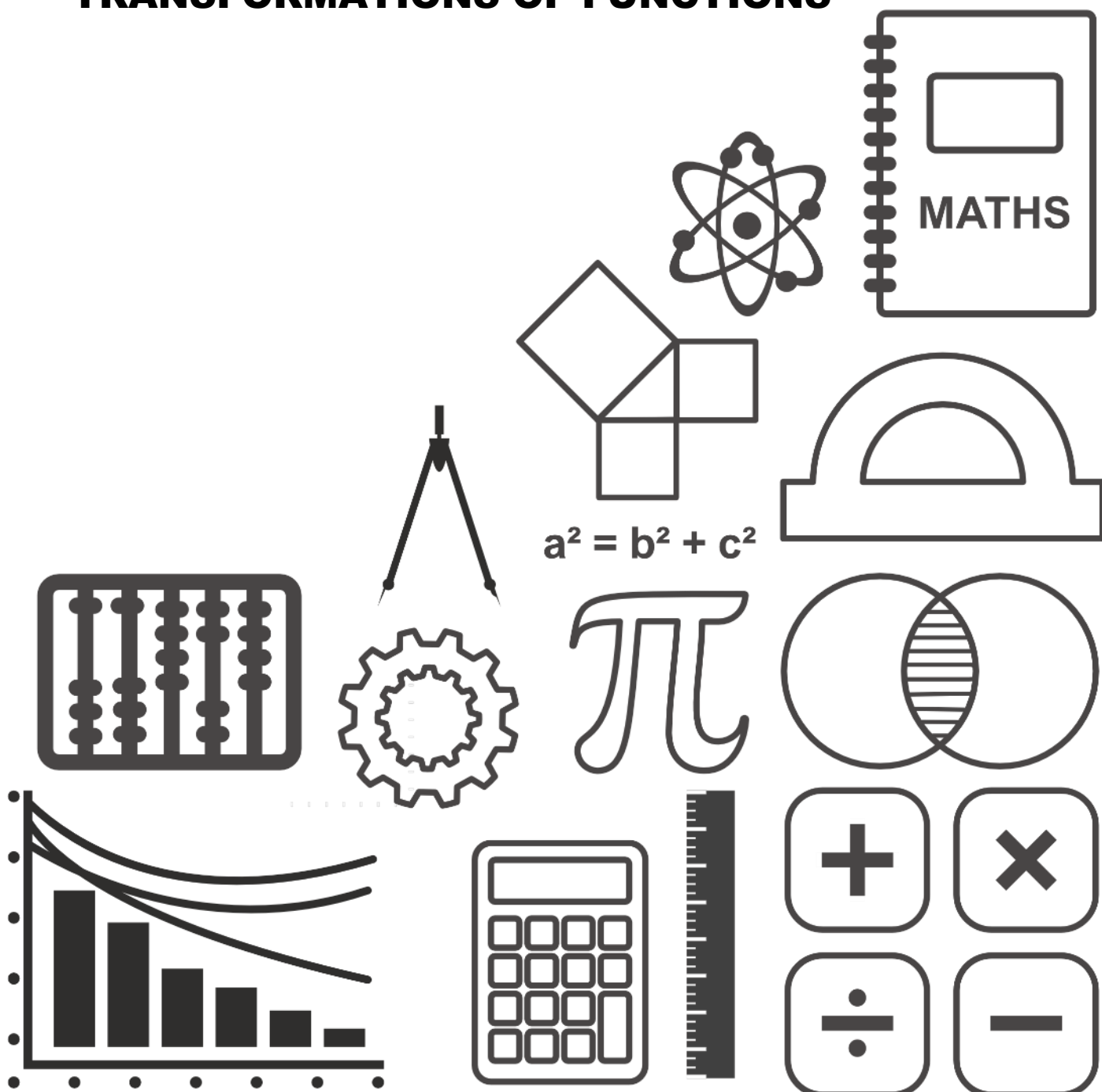
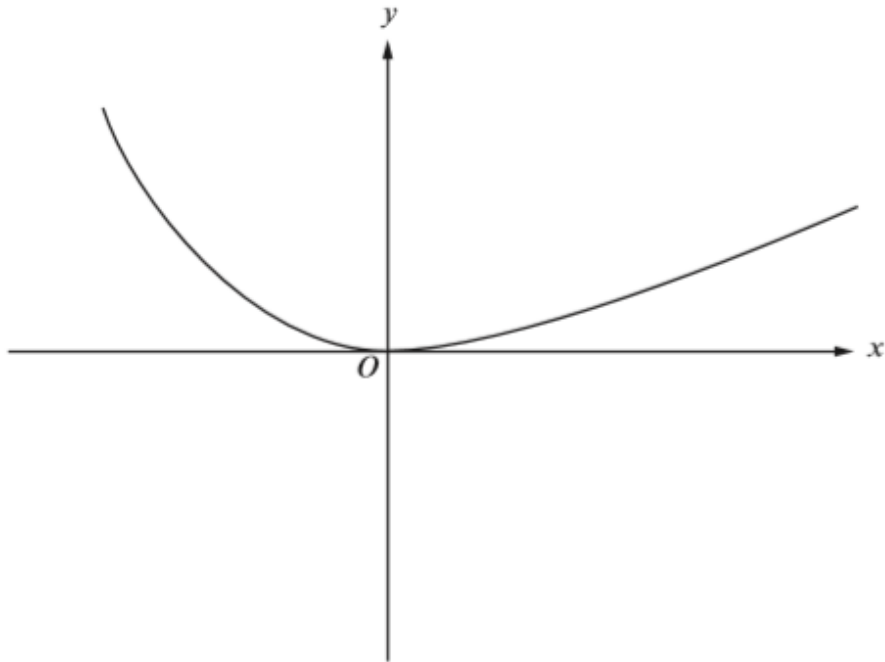


MATHSDIY

GCSE TOPIC BOOKLET TRANSFORMATIONS OF FUNCTIONS

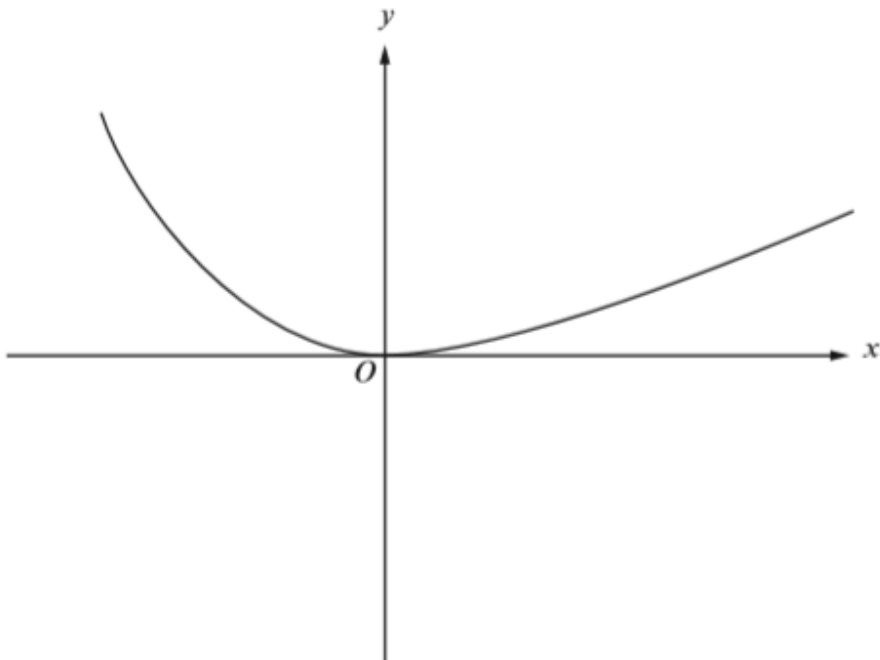


1. (a) The diagram shows a sketch of $y = f(x)$.
 On the same diagram, sketch the curve $y = f(x - 2)$.
 Mark clearly the coordinates of the point where this curve touches an axis.



[2]

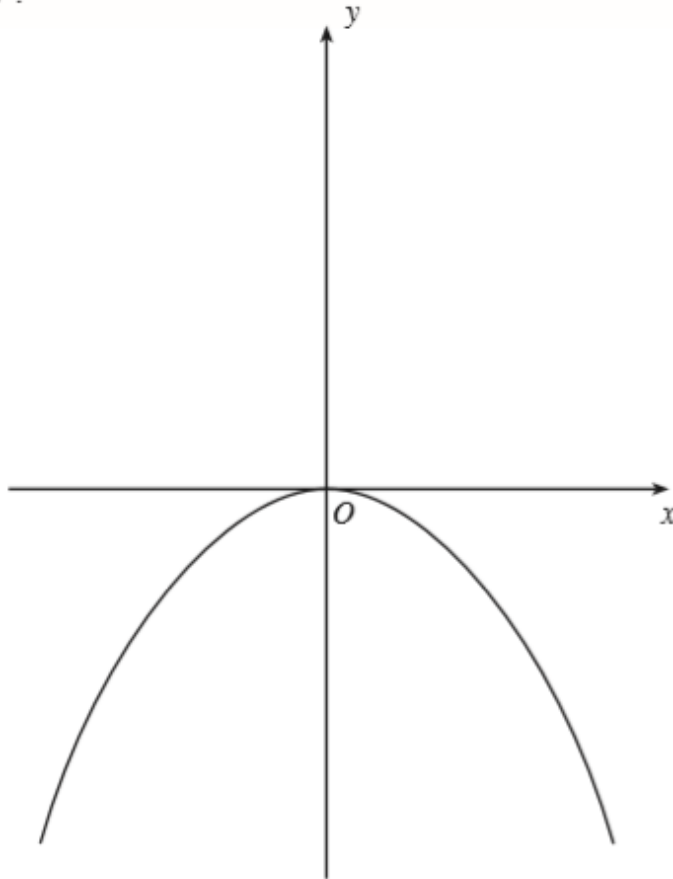
- (b) The diagram shows another sketch of $y = f(x)$.
 On the same diagram, sketch the curve $y = -f(x) + 3$.
 Mark clearly the coordinates of the point where this curve meets the y -axis.



[3]

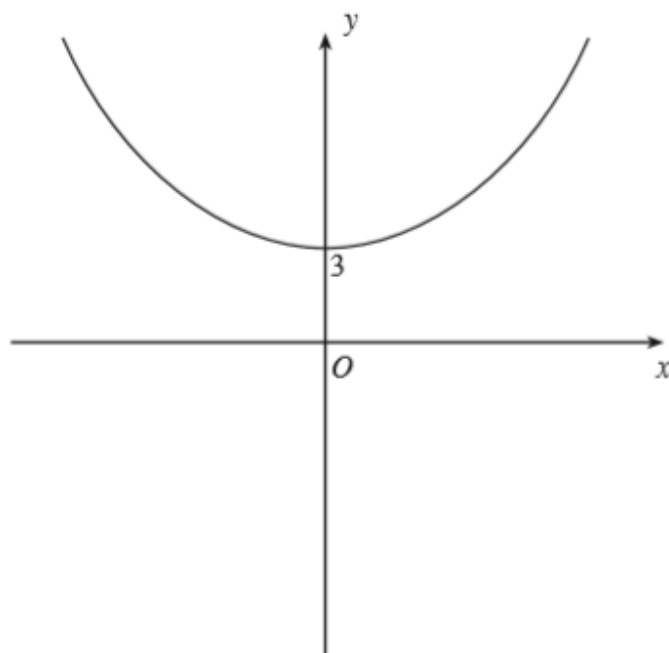
2. (a) The diagram shows the sketch of $y = -x^2$.
On the same diagram, sketch the curve

- (i) $y = x^2$.
(ii) $y = 4x^2$.



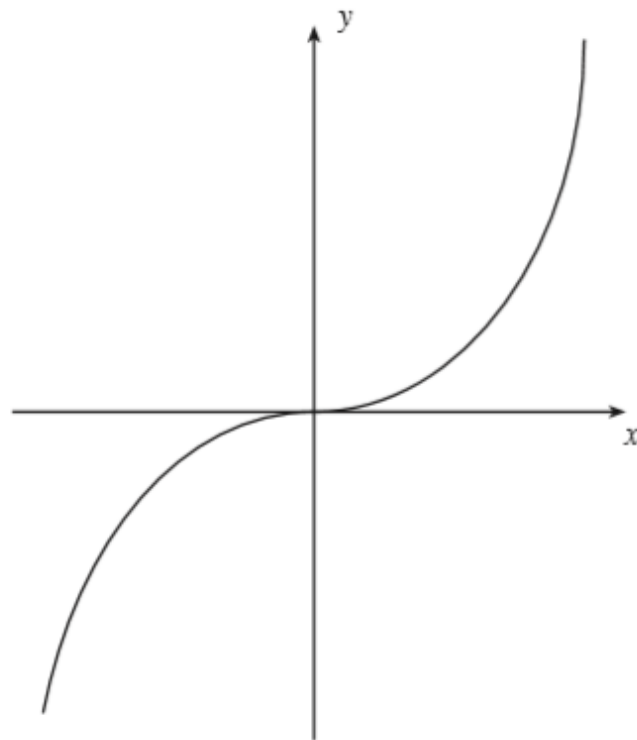
[2]

- (b) The diagram shows a sketch of $y = f(x)$.
On the same diagram, sketch the curve $y = f(x) - 6$.
Mark clearly the coordinates of the point where the curve crosses the y-axis.

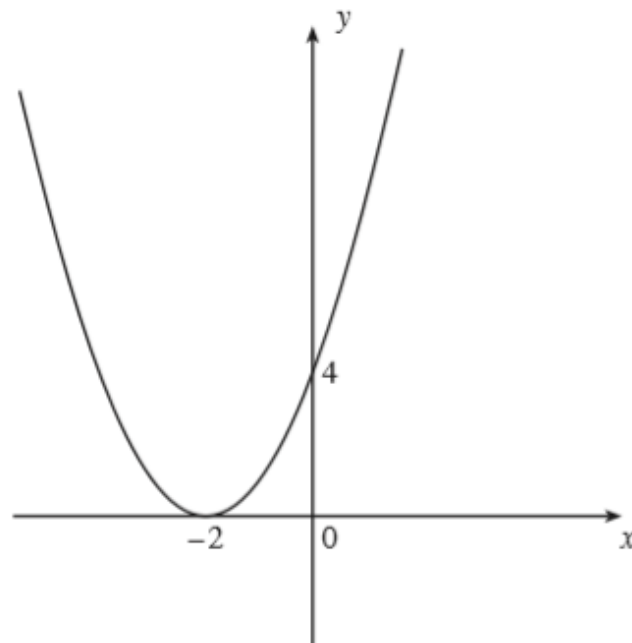


[2]

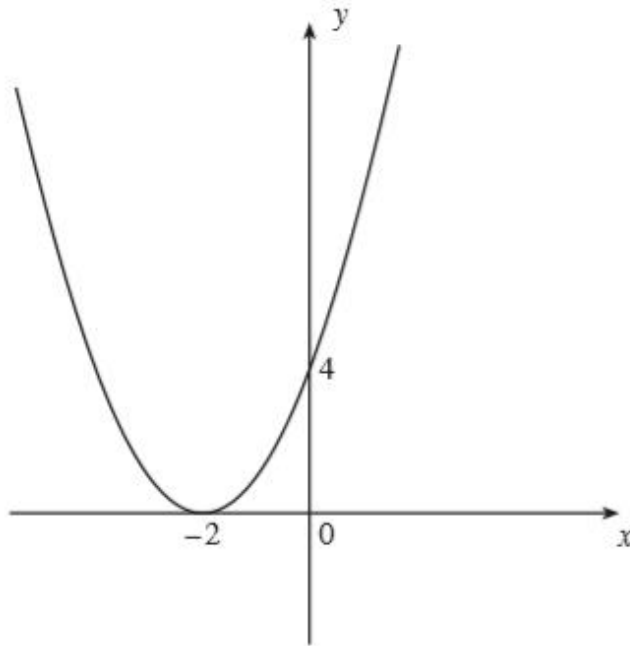
- 3.(a) The diagram shows the sketch of $y = x^3$. On the same diagram, sketch the curve $y = -x^3$. [1]



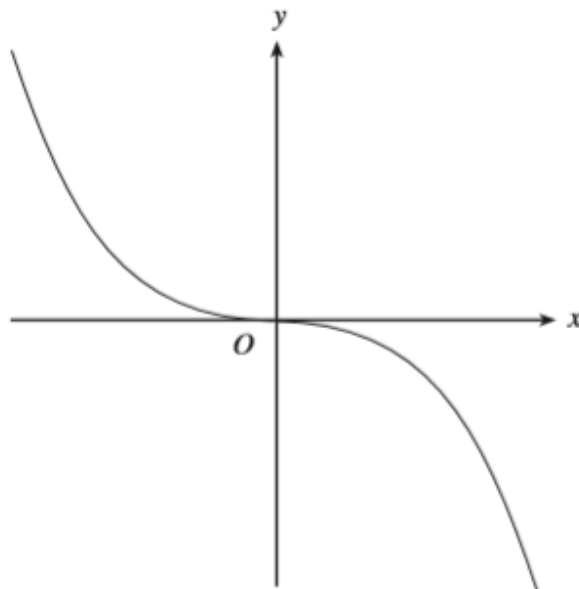
- (b) The diagram shows a sketch of $y = f(x)$. On the same diagram, sketch the curve $y = f(x - 2)$. Mark clearly the coordinates of the points where the curve crosses or touches the x -axis or y -axis. [2]



- (c) The diagram shows a sketch of $y = f(x)$. On the same diagram sketch the curve $y = f(x) + 2$. Mark clearly the coordinates of the points where the curve crosses or touches the x -axis or y -axis. [2]

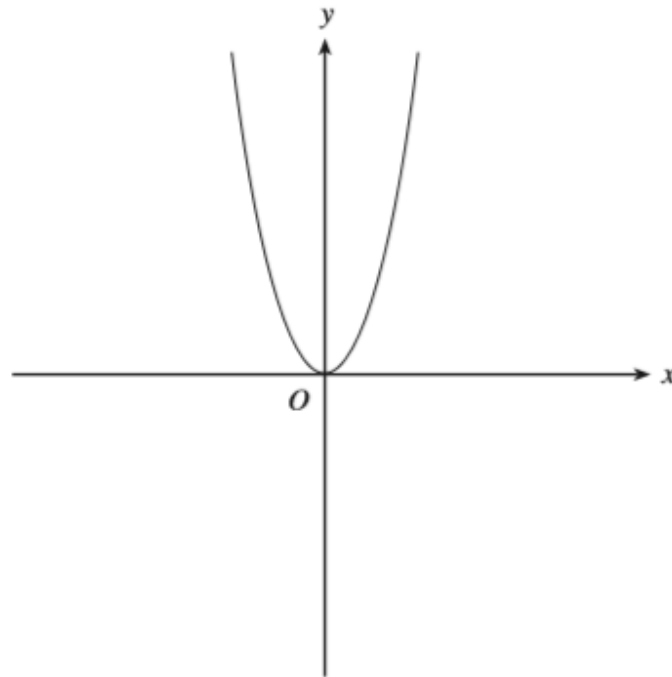


4. (a) The diagram shows a sketch of $y = -x^3$. On the same diagram, sketch the curve $y = -2x^3$. [1]



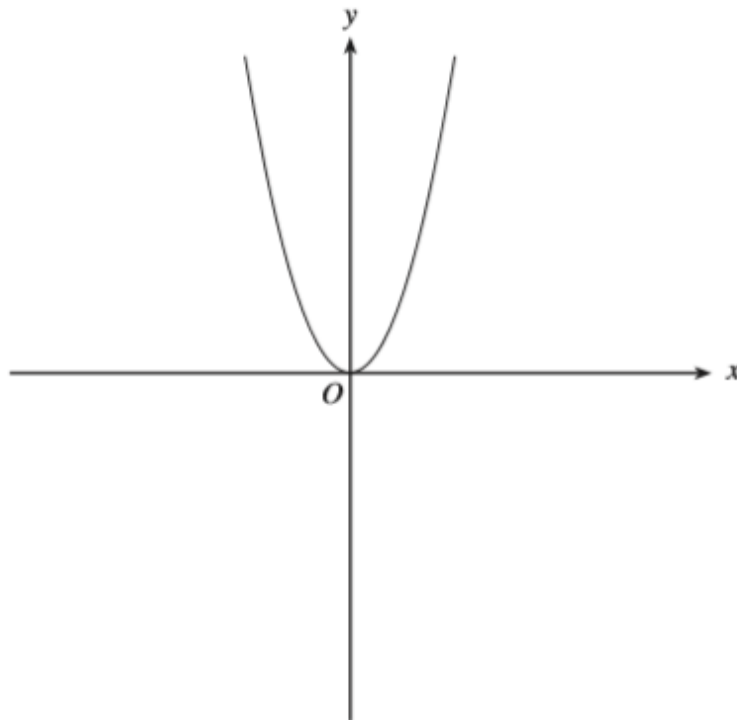
- (b) The diagram shows a sketch of $y = f(x)$.
 On the same diagram, sketch the curve $y = f(x + 5)$.
 Indicate the coordinates of one point on the curve.

[2]

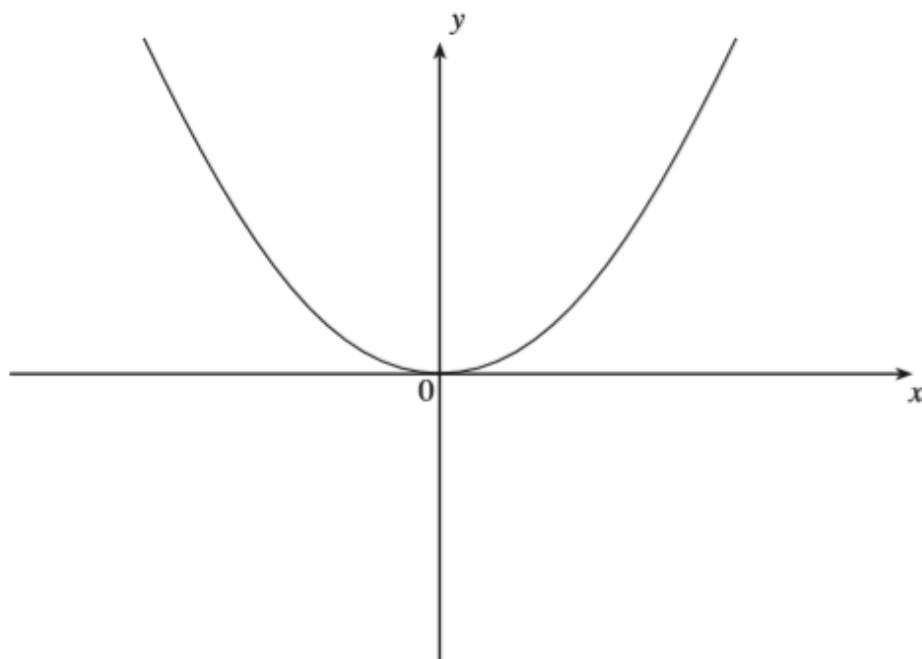


- (c) The diagram shows a sketch of $y = f(x)$.
 On the same diagram, sketch the curve $y = f(x) - 3$.
 Indicate the coordinates of one point on the curve.

[2]

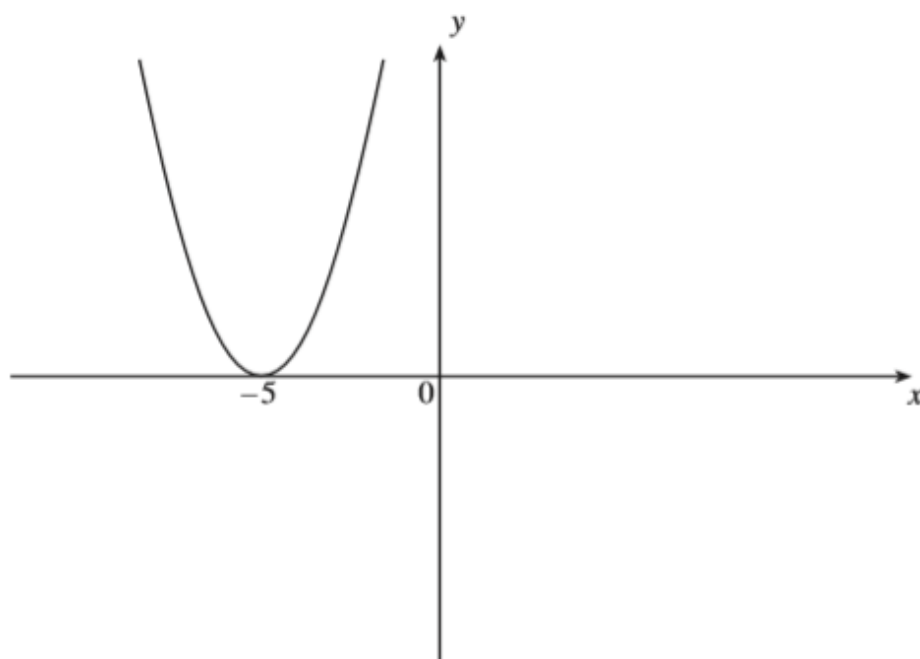


5. (a) The diagram shows a sketch of $y = x^2$.
 On the same diagram sketch the curve $y = x^2 - 4$.
 Mark clearly the coordinates of the point where the curve meets the y-axis.



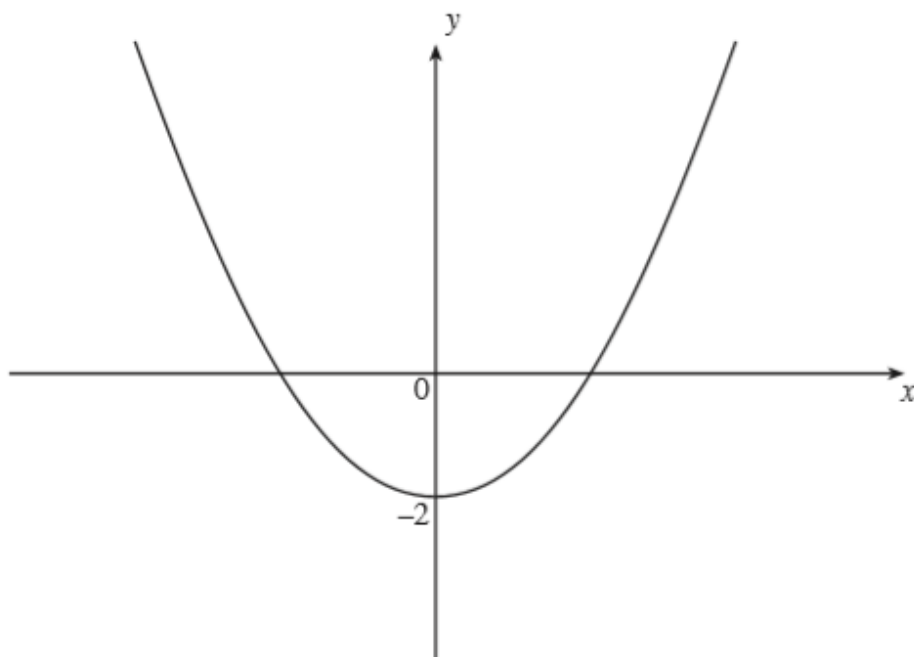
[2]

- (b) The diagram shows the sketch of $y = f(x)$.
 On the same diagram sketch the curve $y = f(x - 5)$.
 Mark clearly the point where the curve meets the x-axis.



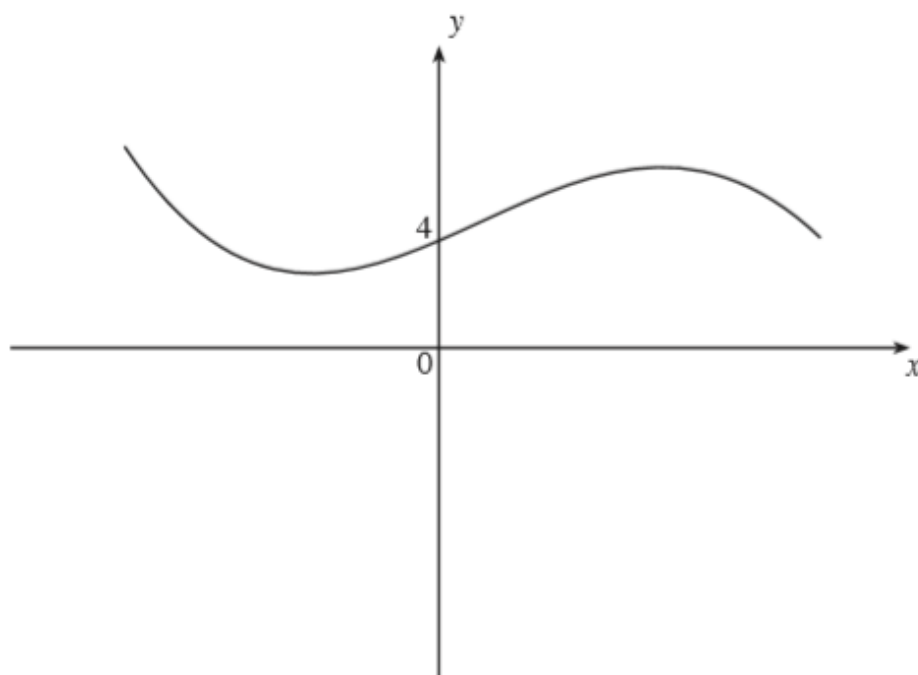
[2]

6. (a) The diagram shows a sketch of $y = f(x)$.
 On the same diagram, sketch the curve $y = f(x) + 5$.
 Mark clearly the value of y at the point where this curve crosses the y -axis.



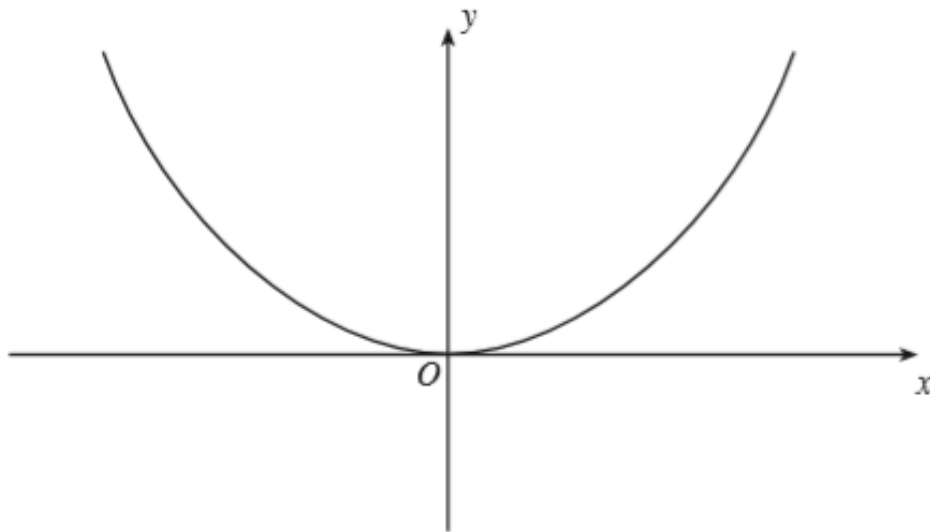
[2]

- (b) The diagram shows a sketch of $y = g(x)$.
 On the same diagram, sketch the curve $y = -g(x)$.
 Mark clearly the value of y at the point where this curve crosses the y -axis.



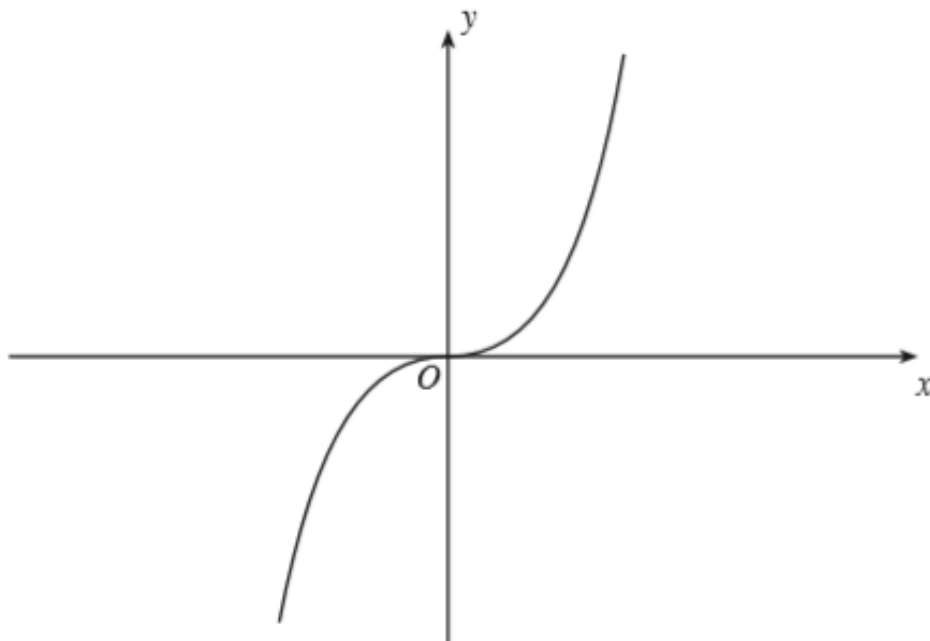
[2]

7. (a) The diagram shows a sketch of $y = x^2$.
 On the same diagram, sketch the curve $y = x^2 + 4$.
 Mark clearly the coordinates of the point where the curve meets the y -axis.



[2]

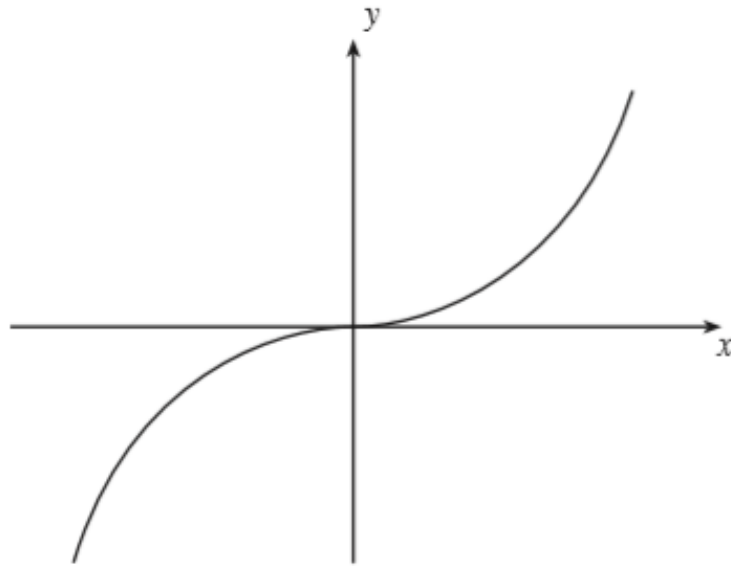
- (b) The diagram shows the sketch of $y = f(x)$.
 On the same diagram sketch the curve $y = f(x - 3)$.
 Mark clearly the co-ordinates of the point where the curve meets the x -axis.



[2]

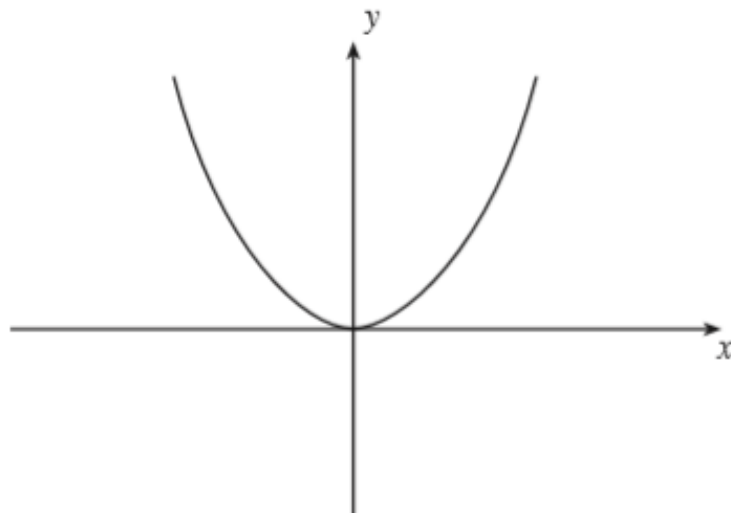
8. (a) The diagram shows a sketch of $y = f(x)$.
On the same diagram, sketch the curve $y = 3f(x)$.

[1]



- (b) The diagram shows a sketch of $y = g(x)$.
On the same diagram, sketch the curve $y = g(x + 6)$. Mark clearly the coordinates of the point where the curve meets the x -axis.

[2]

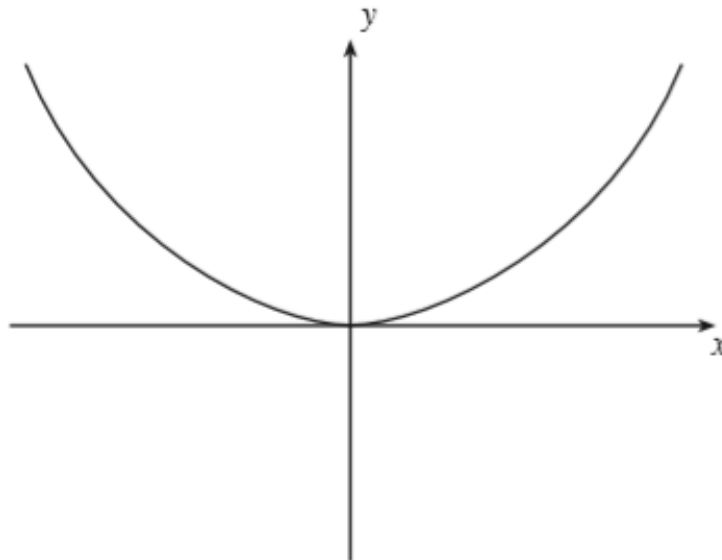


(c) The diagram shows the sketch of $y = h(x)$.
On the same diagram sketch the curves

(i) $y = -h(x)$, and

(ii) $y = -h(x) - 1$, mark clearly the coordinates of the point where the curve crosses the y -axis.

[3]



9. The diagram shows a sketch of $y = -x^3$.
On the same diagram, sketch the curve $y = -2x^3$.

[1]

