

GRAPH TRANSFORMATIONS – PRACTICE QUESTIONS

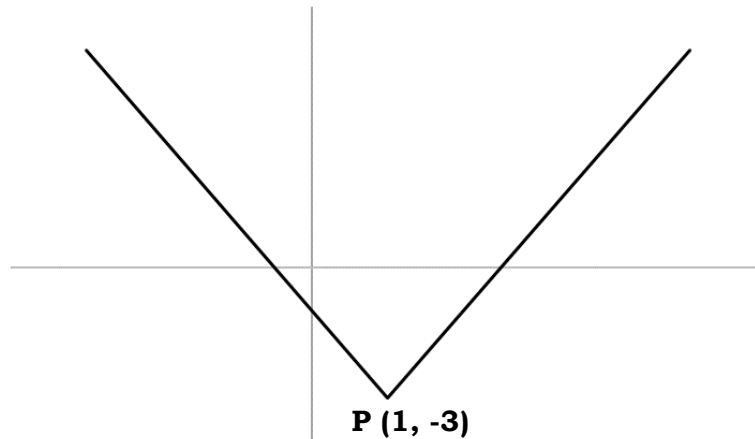


metatutor

1.

Pictured below is the graph $y = f(x)$.

The point P is a point on the graph, with co-ordinates (1, -3).



What are the co-ordinates of point P when $y = f(x)$ is transformed to:

(a) $y = f(x) + 5$

(b) $y = -f(x)$

(c) $y = f(x + 3)$

(d) $y = f(-x)$

2.

Pictured below is the graph $y = g(x)$.

The point Q is a point on the graph, with co-ordinates (4, 4).

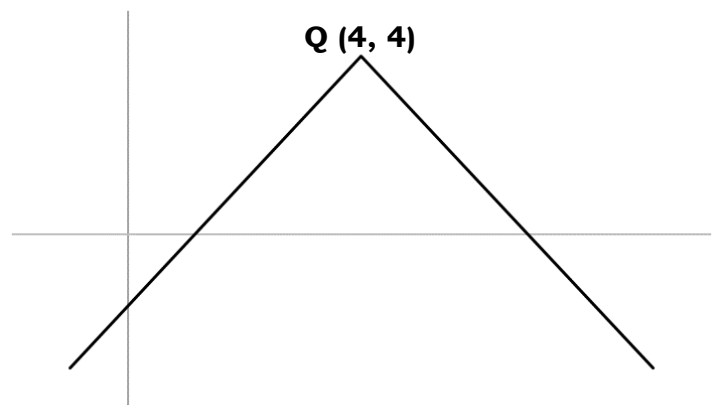
What are the co-ordinates of point Q when $g(x)$ is transformed to:

(a) $y = -g(x)$

(b) $y = g(x - 2)$

(c) $y = g(x) - 8$

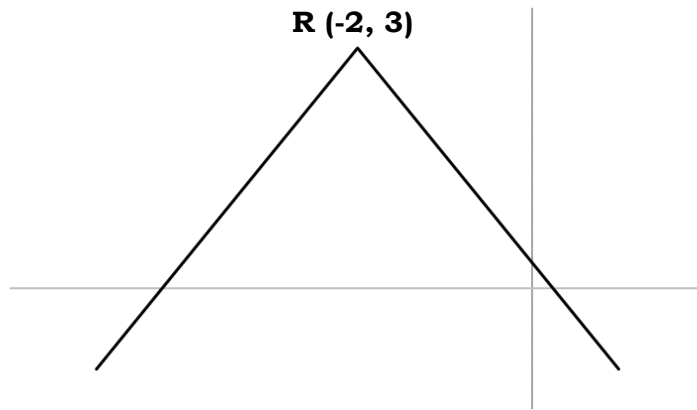
(d) $y = g(-x)$



3.

Pictured below is the graph $y = h(x)$.

The point R is a point on the graph, with co-ordinates $(-2, 3)$.



What are the co-ordinates of point R when $h(x)$ is transformed to:

(a) $y = h(x) + 7$

(b) $y = h(-x)$

(c) $y = -h(x)$

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

4.

Pictured below is the graph $y = i(x)$.

The point S is a point on the graph, with co-ordinates $(-4, -1)$.

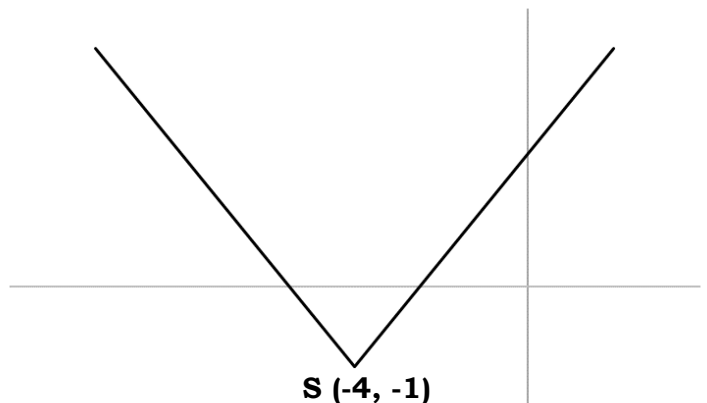
What are the co-ordinates of point S when $i(x)$ is transformed to:

(a) $y = i(x + 2)$

(b) $y = i(-x)$

(c) $y = i(x) + 10$

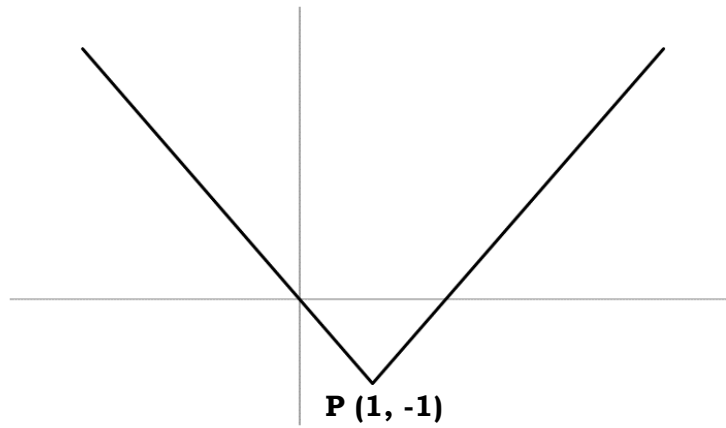
(d) $y = -i(x)$



5.

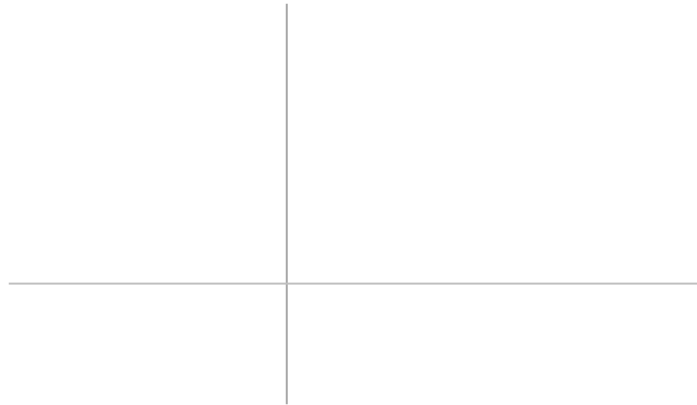
Pictured below is the graph $y = f(x)$.

The point P is a point on the graph, with co-ordinates $(1, -1)$.

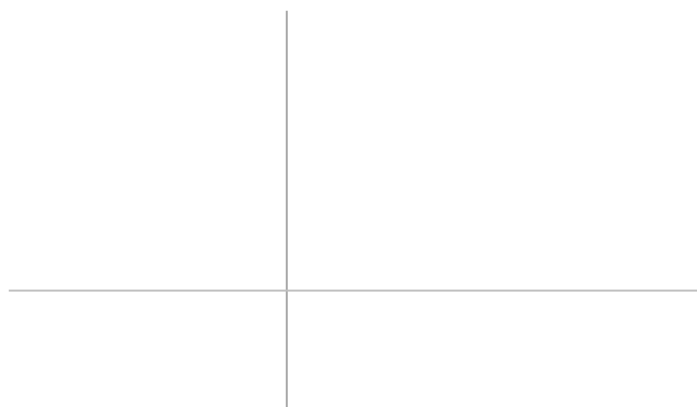


Sketch the following graphs on the axes below, clearly labelling point P:

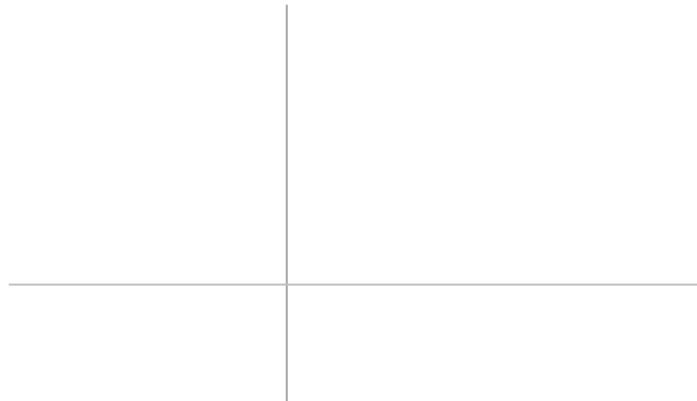
(a) $y = -f(x)$



(b) $y = f(x) + 1$



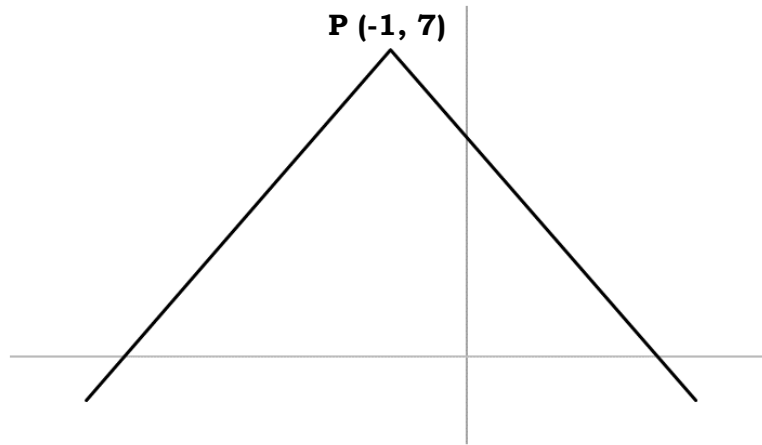
(c) $y = f(x + 1)$



6.

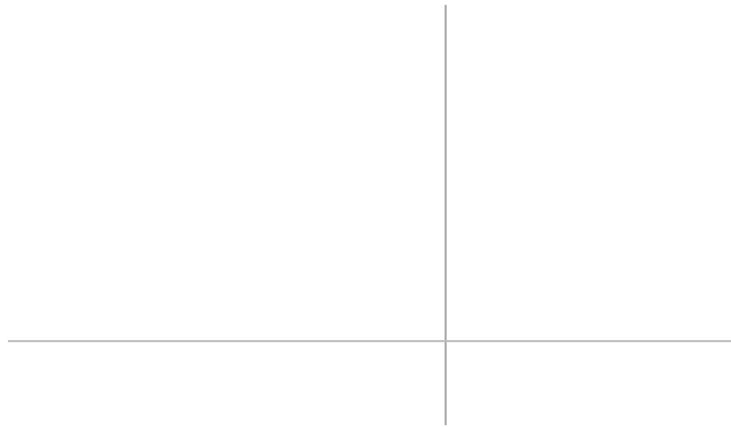
Pictured below is the graph $y = f(x)$.

The point P is a point on the graph, with co-ordinates $(-1, 7)$.

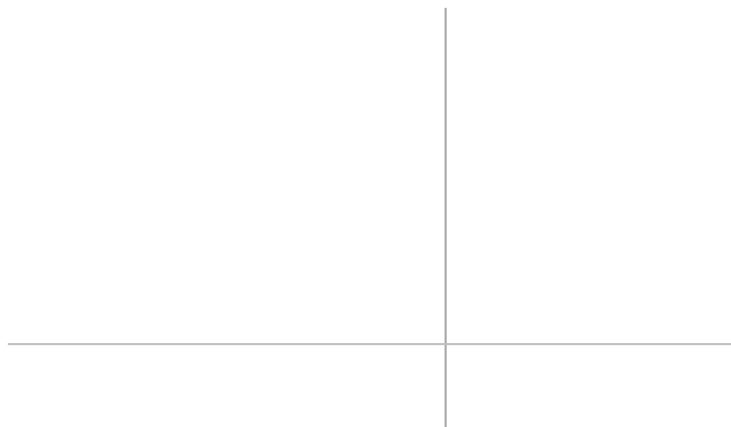


Sketch the following graphs on the axes below, clearly labelling point P:

(a) $y = f(x - 3)$



(b) $y = f(-x)$



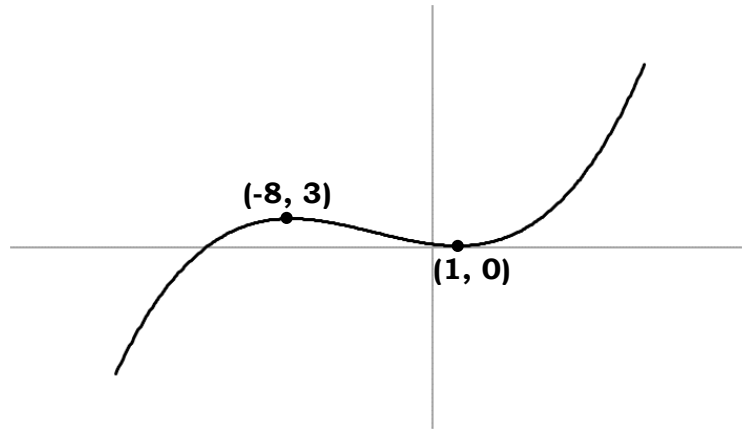
(c) $y = f(x) - 5$



7.

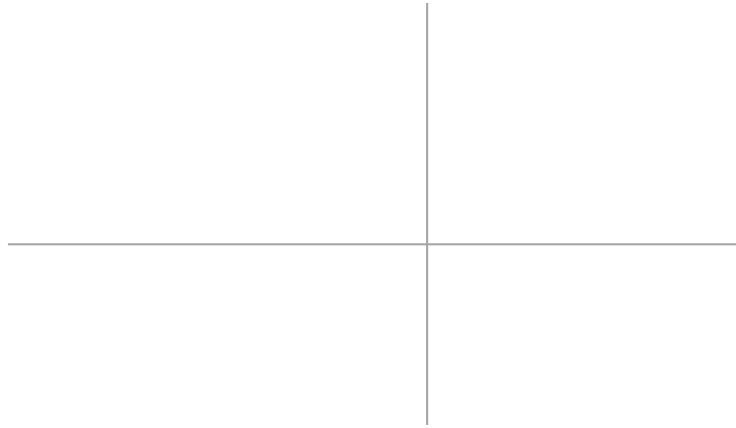
Pictured below is the curve $y = f(x)$.

The curve has stationary points at $(-8, 3)$ and $(1, 0)$.

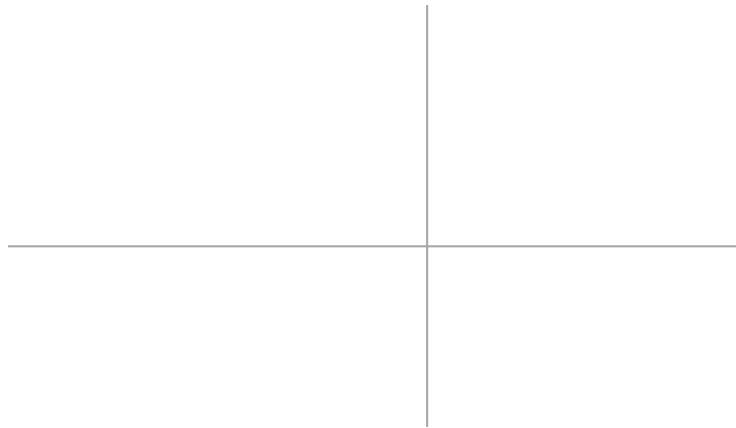


Sketch the following curves on the axes below, clearly labelling their stationary points:

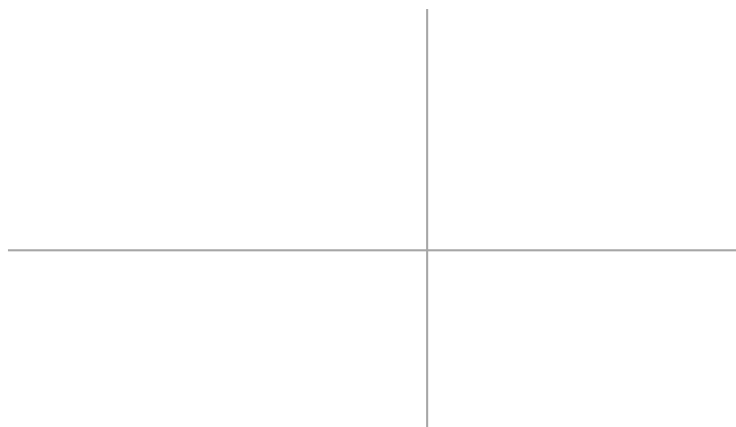
(a) $y = f(x - 3)$



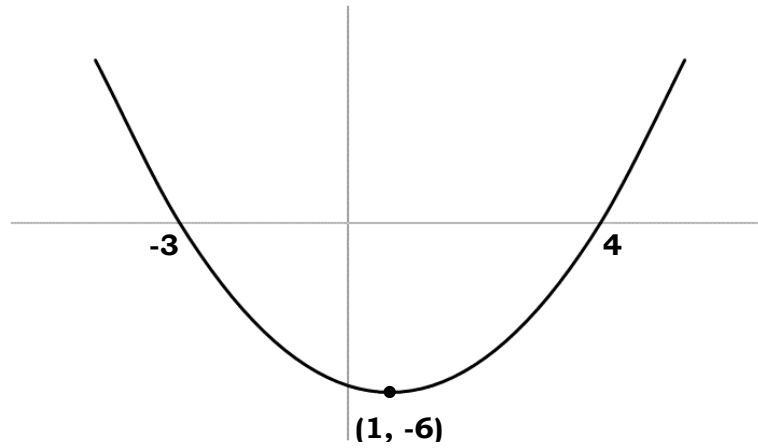
(b) $y = f(x) + 6$



(c) $y = -f(x)$



8.
Pictured below is the curve $y = f(x)$.
The curve crosses the x axis at $x = -3$ and $x = 4$, and has stationary point $(1, -6)$.

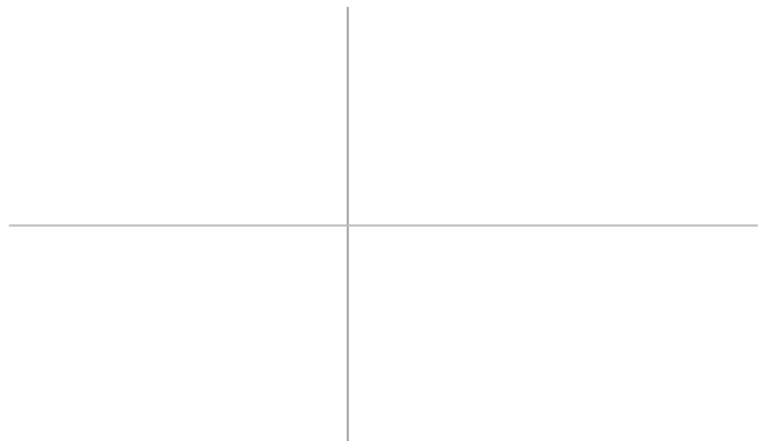


Sketch the following curves, clearly labelling where they cross the x axis and their stationary point:

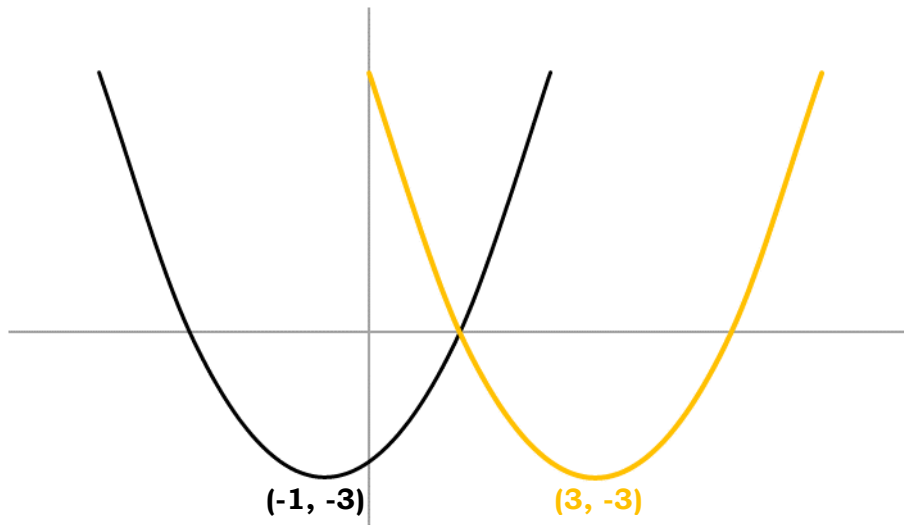
(a) $y = f(-x)$



(b) $y = f(x + 2)$

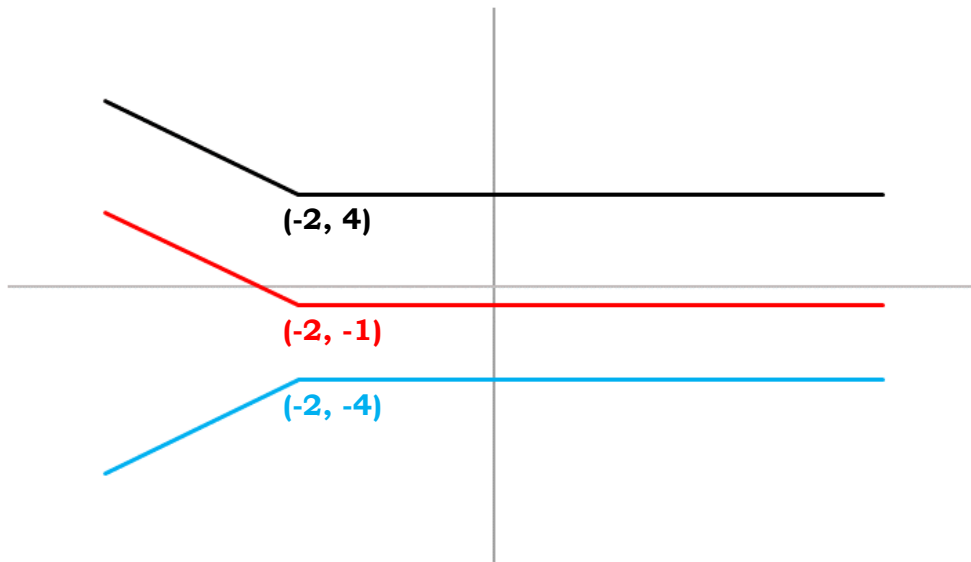


9.
 Pictured below in black is the curve $y = f(x)$, with minimum point $(-1, -3)$.
 The curve is transformed into the yellow curve, with minimum point $(3, -3)$.



Write down the equation of the yellow curve.

10.
 Pictured below in black is the graph $y = f(x)$, with point P with co-ordinates $(-2, 4)$.
 The graph is transformed into the blue graph, changing the co-ordinates of point P to $(-2, -4)$.
 The graph is also transformed into the red graph, changing the co-ordinates of point P to $(-2, -1)$.



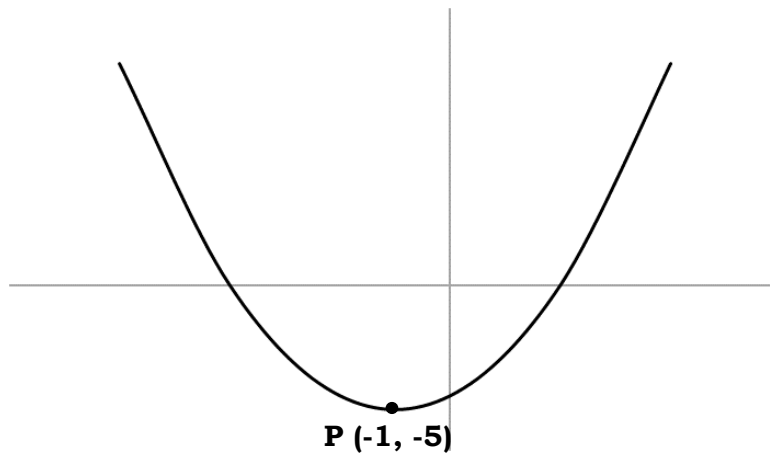
(a) Write down the equation of the blue graph.

(b) Write down the equation of the red graph.

11.

Pictured below is the graph $y = f(x)$.

The point P is the stationary point of the graph, with co-ordinates $(-1, -5)$.



What are the co-ordinates of point P when $y = f(x)$ is transformed to:

(a) $y = f(-x)$

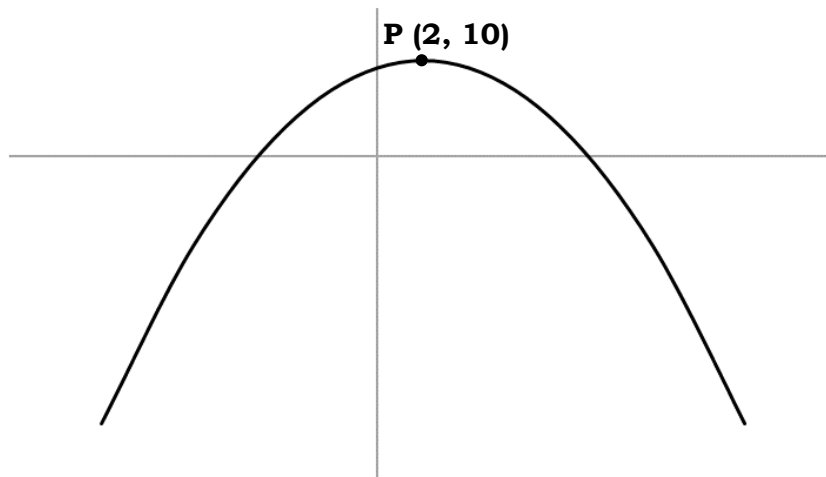
(b) $y = f(x + 2) + 3$

(c) $y = 7 - f(x)$

12.

Pictured below is the graph $y = f(x)$.

The point P is the stationary point of the graph, with co-ordinates $(2, 10)$.



What are the co-ordinates of point P when $y = f(x)$ is transformed to:

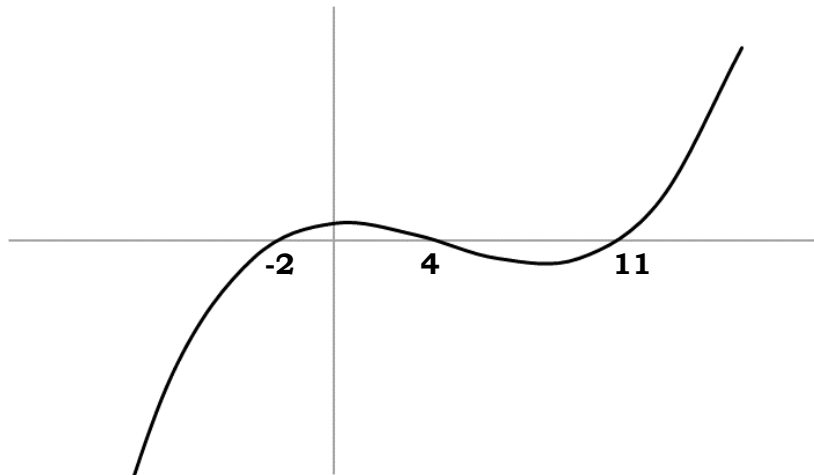
(a) $y = f(x - 3) - 8$

(b) $y = f(-x) + 1$

13.

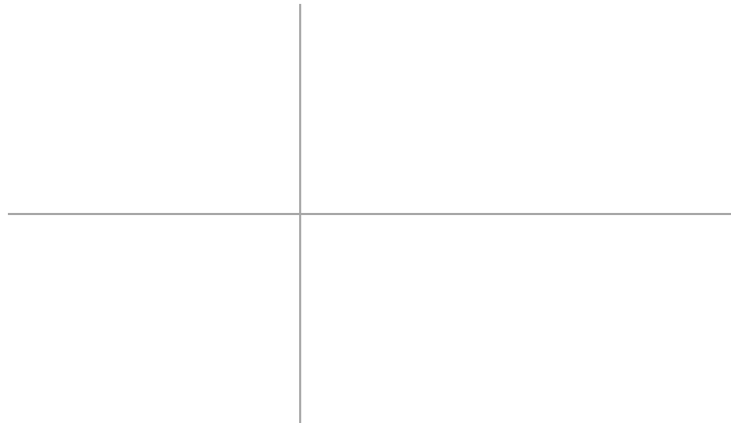
Pictured below is the curve $y = f(x)$.

The curve crosses the x axis at $x = -2$, $x = 4$ and $x = 11$.

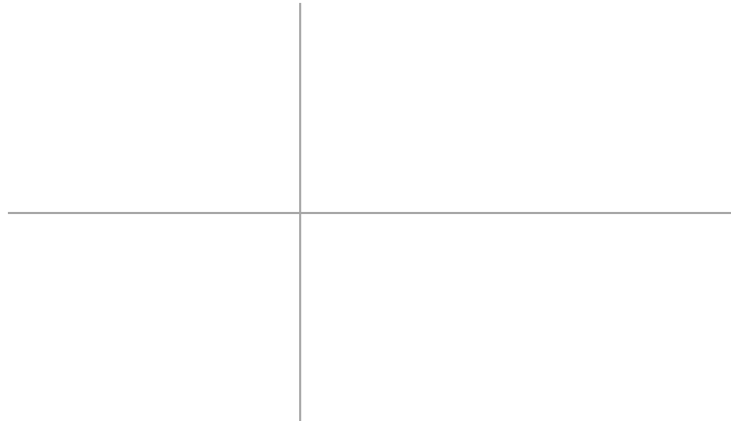


Sketch the following curves, clearly labelling where they cross the x axis:

(a) $y = f(x + 4)$



(b) $y = f(-x)$



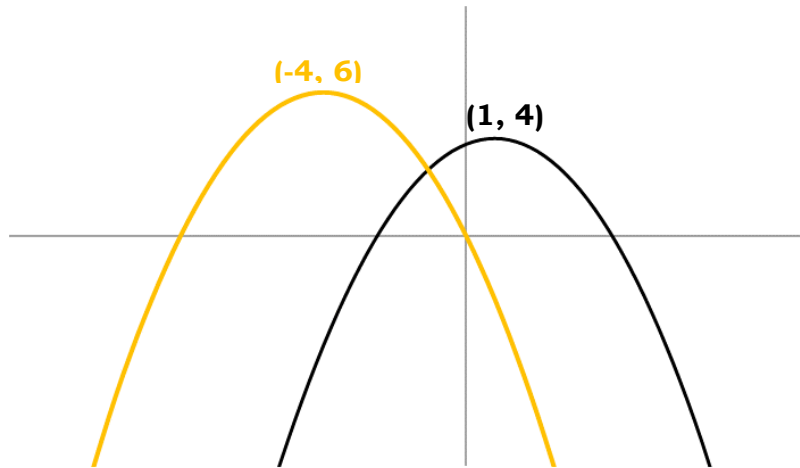
(c) $y = -f(x - 2)$



14.

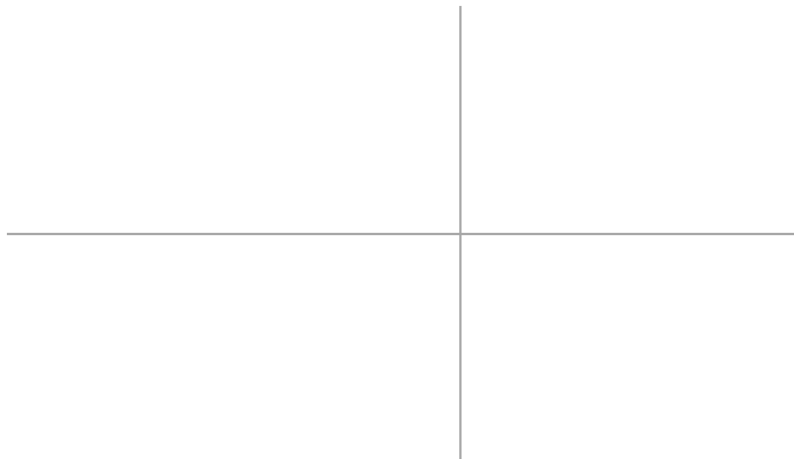
Pictured below in black is the curve $y = f(x)$, with stationary point $(1, 4)$.

The curve is transformed into the yellow curve, with stationary point $(-4, 6)$.



(a) Find the equation of the yellow curve.

(b) On the axis below, sketch $y = -f(x)$, clearly labelling the stationary point of the curve.



(c) On the axis below, sketch $y = f(-x) - 4$, clearly labelling the stationary point of the curve.

