

Graph transformations

Q1

The graph of a function $y = f(x)$ is sketched below in **Fig. 2**.

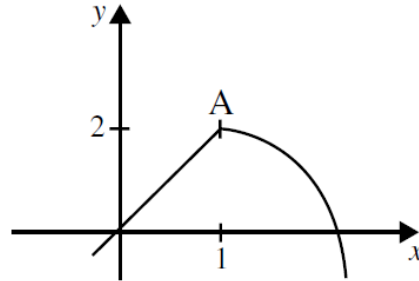


Fig. 2

On separate diagrams sketch the graphs of:

(i) $y = 3f(\frac{1}{2}x)$

[2]

(ii) $y = 4 - f(x)$

[2]

indicating the coordinates of the images of the point A.

Q2

The graph of a function $y = f(x)$ is sketched below in **Fig. 1**.

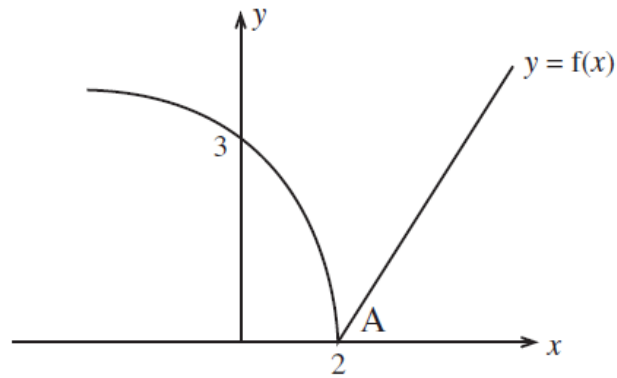


Fig. 1

On separate diagrams sketch the graphs of:

(i) $y = -f(x) + 3$

[2]

(ii) $y = f(2x - 1)$

[2]

indicating the coordinates of the images of point A.

Q3

Fig. 1 below shows a sketch of the graph of the function $y = f(x)$.

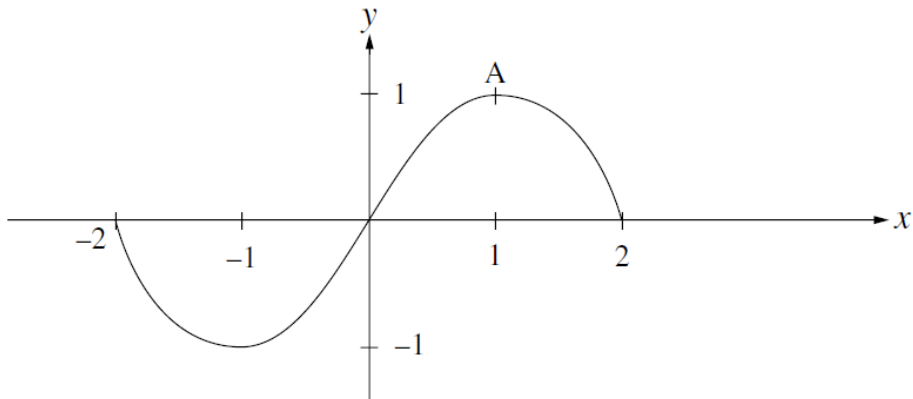


Fig. 1

On separate diagrams sketch the graphs of:

(i) $y = -f(x + 2)$; [2]

(ii) $y = 3f(\frac{1}{2}x)$ [2]

marking clearly the image of the point A on each sketch.

Q4

The graph of the function $y = f(x)$ is sketched in **Fig. 1** below.

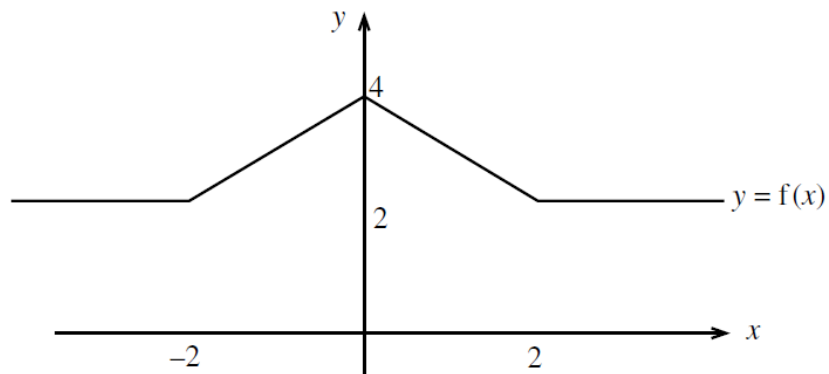


Fig. 1

On separate diagrams sketch the graphs of

(i) $y = \frac{1}{2}f(2x)$ [3]

(ii) $y = f(x - 2) + 3$ [3]

marking on the axes the relevant values of x and y .

Q5

(a) The graph of the function $y = f(x)$ is shown in **Fig. 2** below.

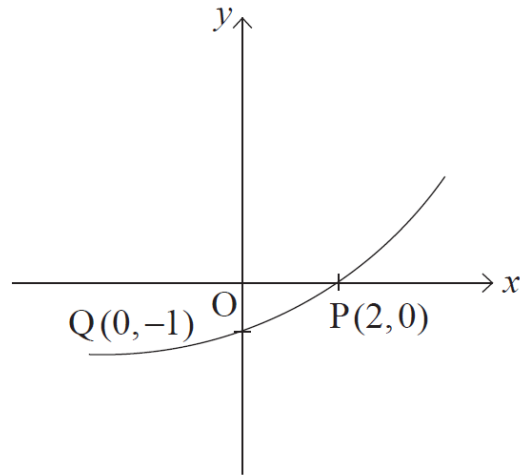
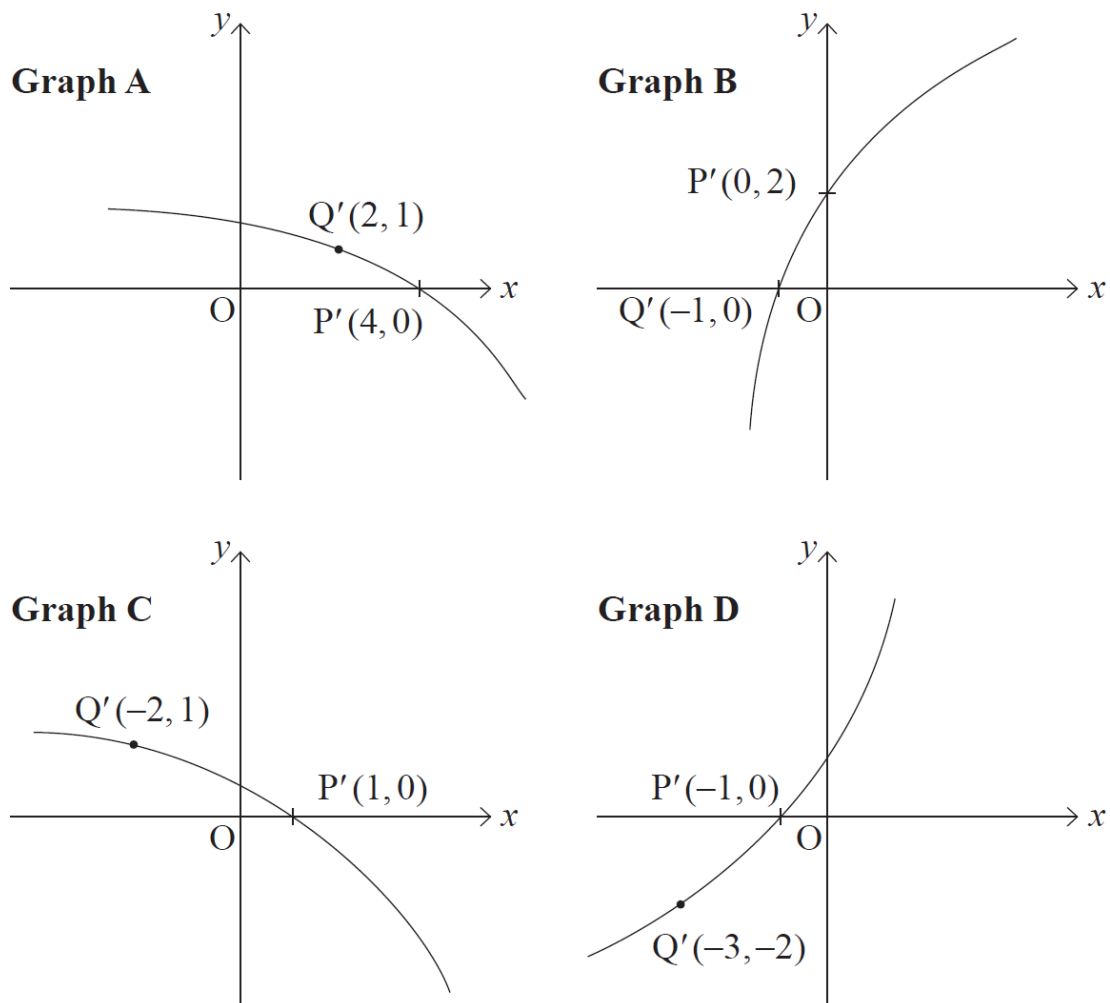


Fig. 2

The curve cuts the axes at $P(2, 0)$ and $Q(0, -1)$.

Fig. 3 below shows five different transformations of $y = f(x)$.



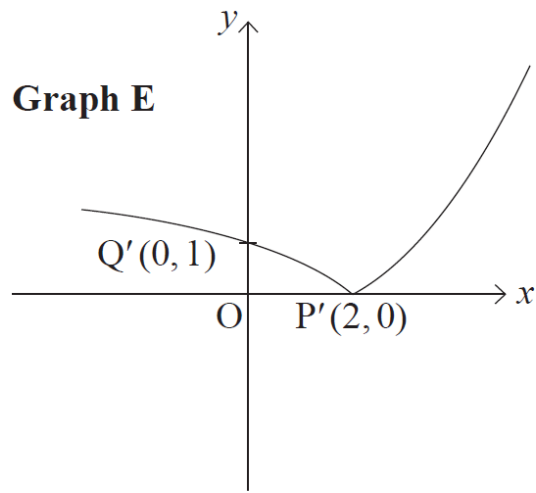


Fig. 3

Complete the following statements:

(i) $y = 2f(x + 3)$ is represented by Graph [1]

(ii) $y = -f(x - 2)$ is represented by Graph [1]

(iii) $y = |f(x)|$ is represented by Graph [1]

(iv) $y = f^{-1}(x)$ is represented by Graph [1]