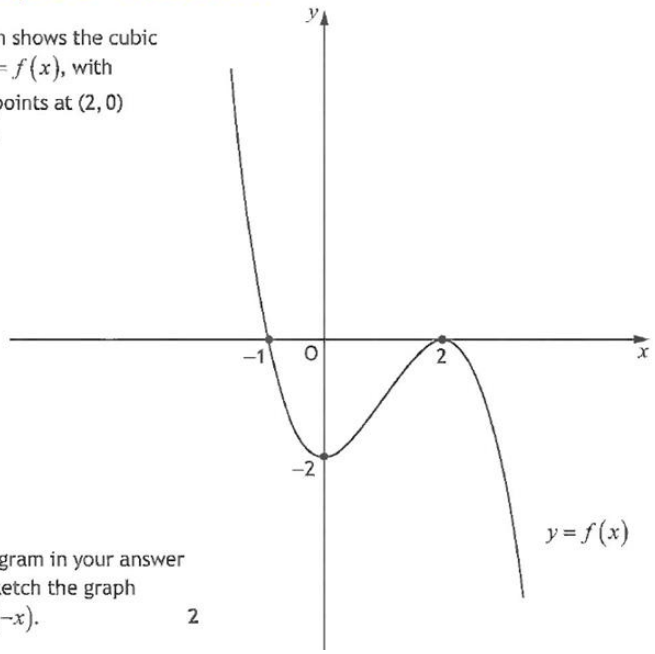
SQA Past paper questions

2023 – Paper 2 – Question 4

The diagram shows the cubic graph of $y = f(x)$, with stationary points at $(2, 0)$ and $(0, -2)$.

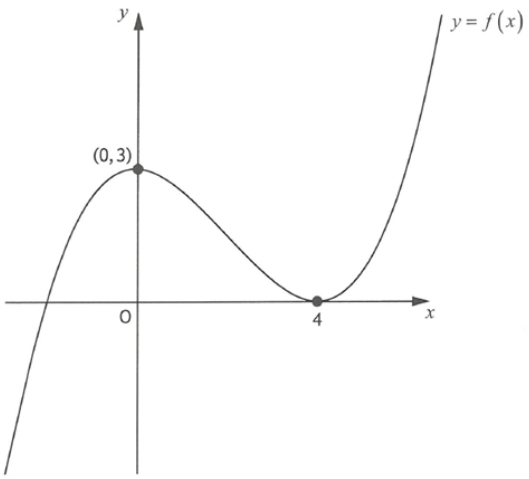


On the diagram in your answer booklet, sketch the graph of $y = 2f(-x)$. 2

Click here for video solution.

2022 – Paper 1 – Question 10

The diagram shows the graph of a cubic function with equation $y = f(x)$.
The curve has stationary points at $(0, 3)$ and $(4, 0)$.



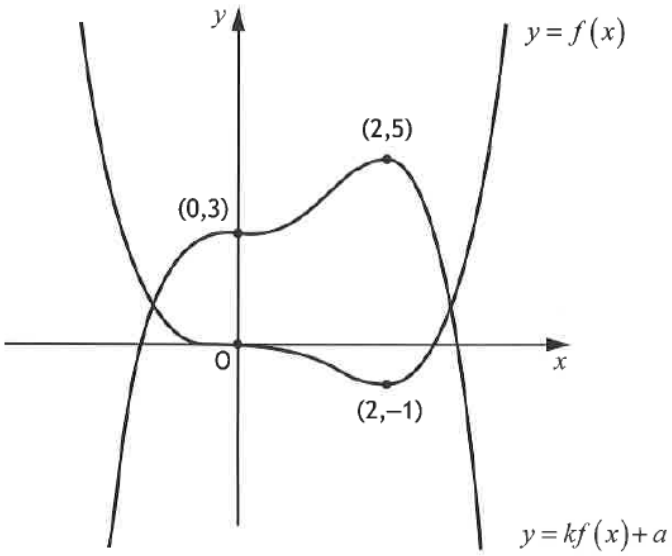
(a) Sketch the graph of $y = 2f(x) + 1$. 3
Use the diagram provided in the answer booklet.

(b) State the coordinates of the stationary points on the graph of $y = f\left(\frac{1}{2}x\right)$. 1

Click here for video solution.

2019 – Paper 1 – Question 10

The diagram shows the graphs with equations $y = f(x)$ and $y = kf(x) + a$.



(a) State the value of a. **1**

(b) Find the value of k. **1**

Click here for video solution.

2017 – Paper 1 – Question 15

A quadratic function, f, is defined on $\mathbb{R}$, the set of real numbers.

Diagram 1 shows part of the graph with equation $y = f(x)$.
The turning point is $(2, 3)$.

Diagram 2 shows part of the graph with equation $y = h(x)$.
The turning point is $(7, 6)$.

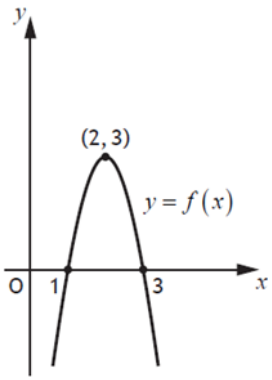


Diagram 1

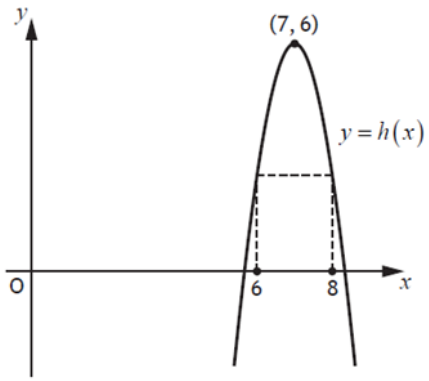


Diagram 2

(a) Given that $h(x) = f(x + a) + b$. Write down the values of a and b. **2**

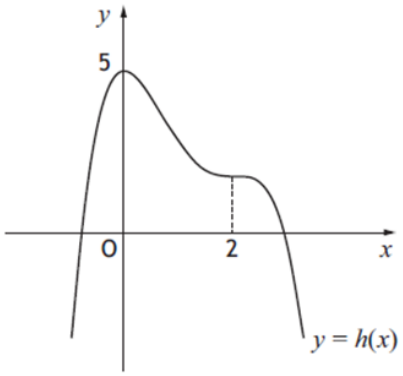
(b) It is known that $\int_1^3 f(x)\,dx = 4$. Determine the value of $\int_6^8 h(x)\,dx$. **1**

(c) Given $f'(1) = 6$, state the value of $h'(8)$. **1**

Click here for video solution.

Exemplar – Paper 1 – Question 8

The diagram below shows the graph of a quartic $y=h(x)$, with stationary points at $x=0$ and $x=2$.



On separate diagrams sketch the graphs of:

(a) $y=2-h(x)$. 3

(b) $y=h'(x)$. 3

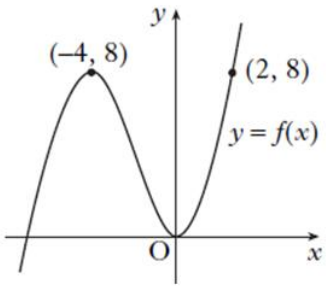
Click here for video solution.

2009 – Paper 1 – Question 23

The diagram shows a sketch of the function $y=f(x)$.

(a) Copy the diagram and on it sketch the graph of $y=f(2x)$. 2

(b) On a separate diagram sketch the graph of $y=1-f(2x)$. 3



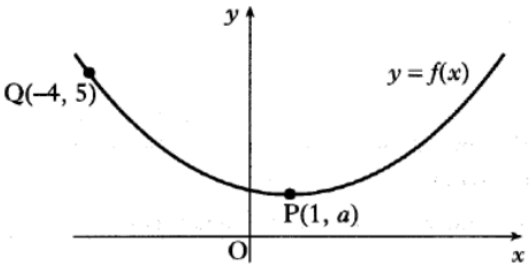
Click here for video solution.

2006 – Paper 2 – Question 7

The diagram shows the graph of a function $y=f(x)$.
Copy the diagram and on it sketch the graphs of:

(a) $y=f(x-4)$; 2

(b) $y=2+f(x-4)$. 2



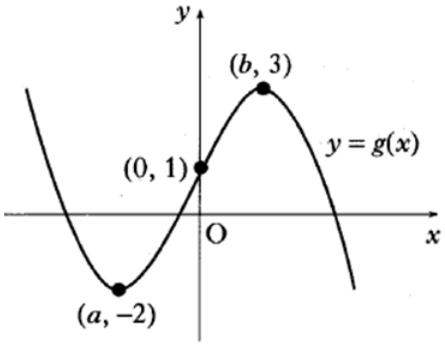
Click here for video solution.

2004 – Paper 1 – Question 4

The diagram shows the graph of $y = g(x)$.

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

(b) On the same diagram, sketch the graph of $y = 3 - g(x)$. **2**



Click here for video solution.

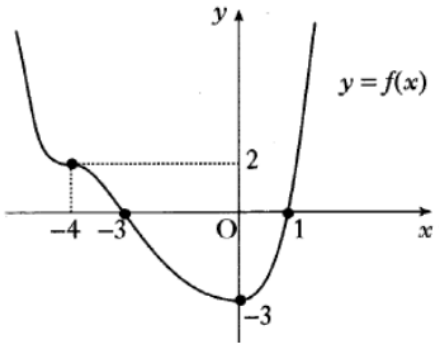
2003 – Paper 2 – Question 5

The diagram shows the graph of a function f.

f has a minimum turning point at $(0, -3)$ and a point of inflexion at $(-4, 2)$.

(a) Sketch the graph of $y = f(-x)$. **2**

(b) On the same diagram, sketch the graph of $y = 2f(-x)$. **2**



Click here for video solution.

1999 – Paper 1 – Question 10

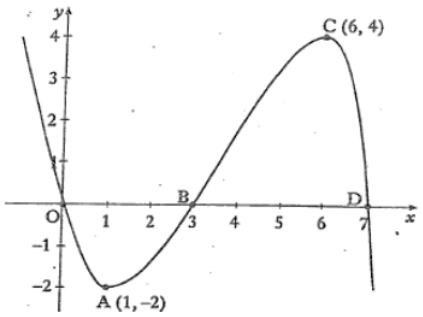
Part of the graph of $y = f(x)$ is shown in the diagram.

On separate diagrams, sketch the graph of

(a) $y = f(x + 1)$ **(2)**

(b) $y = -2f(x)$. **(3)**

Indicate on each graph the images of O, A, B, C and D.



Click here for video solution.

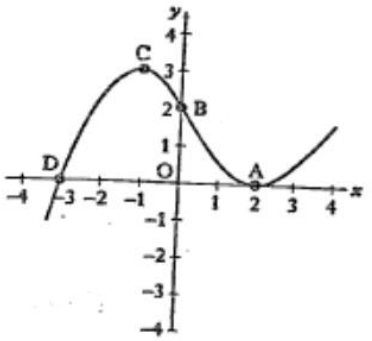
1996 – Paper 1 – Question 8

Part of the graph of $y = f(x)$ is shown in the diagram. On separate diagrams, sketch the graphs of

(i) $y = f(x - 1)$

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

indicating on each graph the images of A, B, C and D.

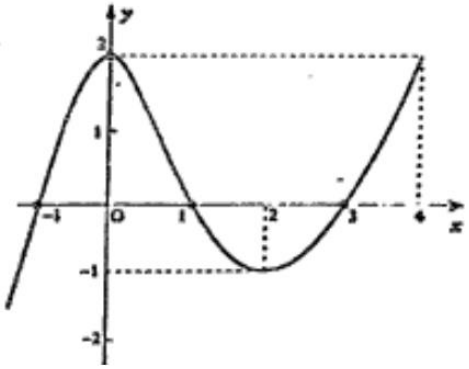


(5)

Click here for video solution.

1993 – Paper 1 – Question 8

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



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

(3)

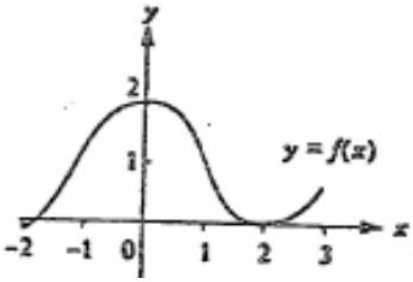
Click here for video solution.

1991 – Paper 1 – Question 9

Diagram 2 shows the graph of $y = f(x)$, where $-2 \leq x \leq 3$.

On separate diagrams, sketch the graphs of:

(a) $y = -f(x)$;
(b) $y = f'(x)$.

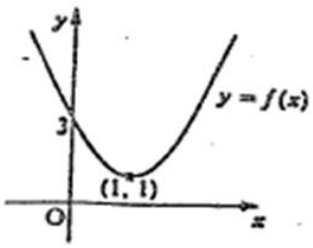


2
3

Click here for video solution.

1989 – Paper 2 – Question 4

The diagram shows a sketch of the parabola $y = f(x)$.



Copy the sketch of $y = f(x)$. On your diagram, draw the parabola with equation $y = -f(x) + 3$. 4

Click here for video solution.