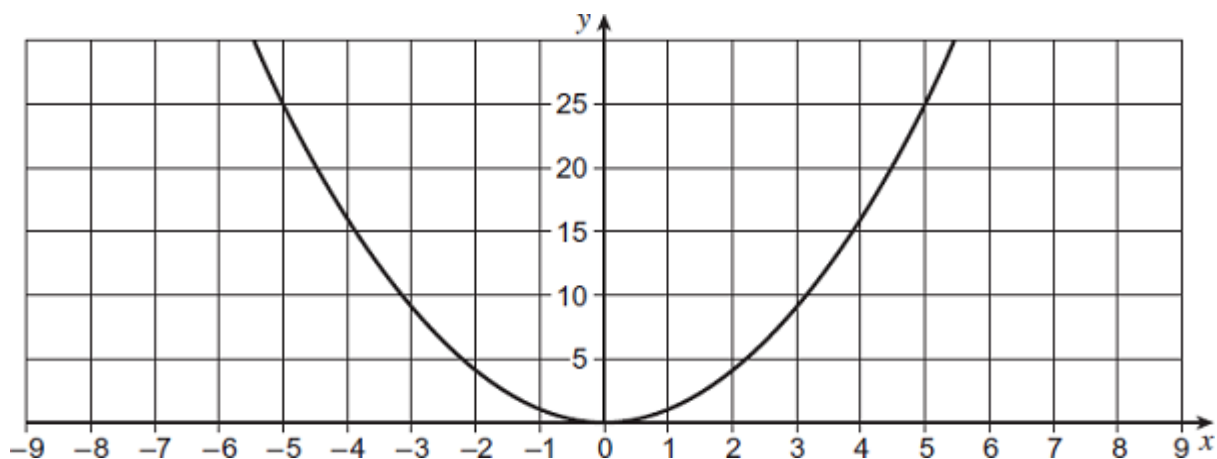


Non-Calculator

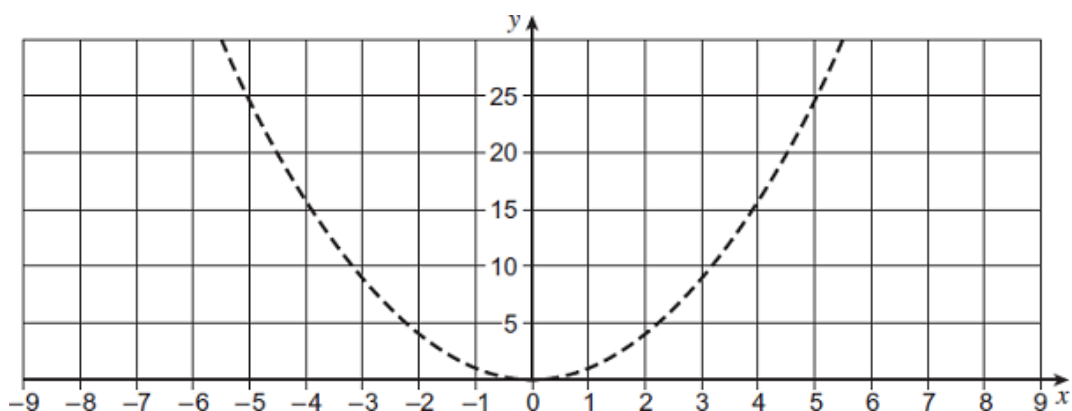
Q1.

This graph is a sketch of $y = x^2$



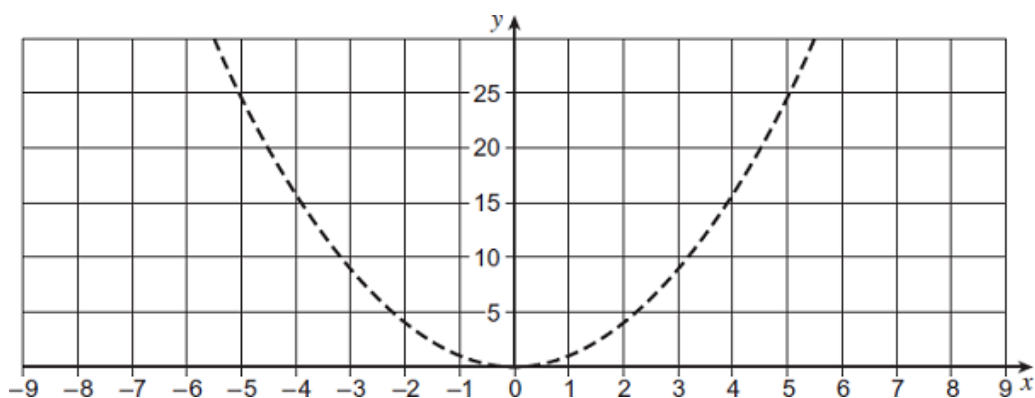
On each grid, the graph of $y = x^2$ is shown dashed to help you.

(a) Sketch the graph of $y = x^2 + 5$ on the grid.



(1)

(b) Sketch the graph of $y = (x - 3)^2$ on the grid.



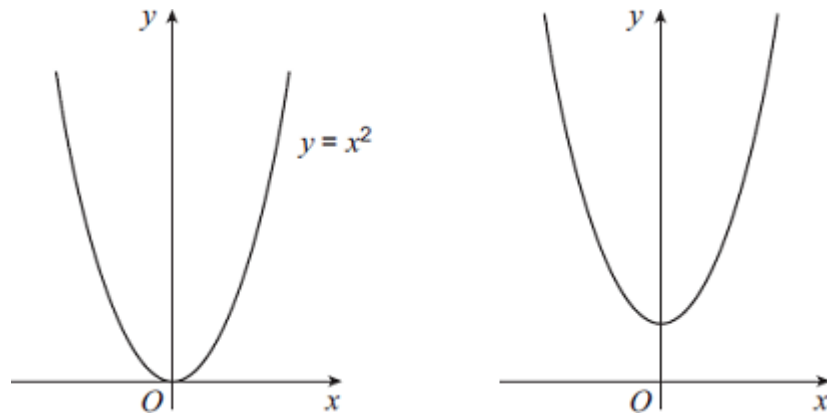
(1)

(Total 2 marks)

Q2.

- (a) The graph of $y = x^2$ is transformed by the vector $\begin{pmatrix} 0 \\ 2 \end{pmatrix}$

Not drawn accurately



Write down the equation of the transformed graph.

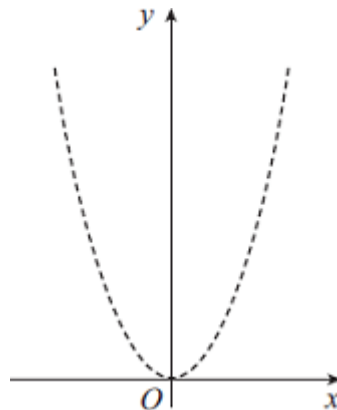
Answer _____

(1)

- (b) The diagram shows the graph of $y = x^2$

On the same diagram, sketch the graph of $y = (x + 1)^2$

Not drawn accurately



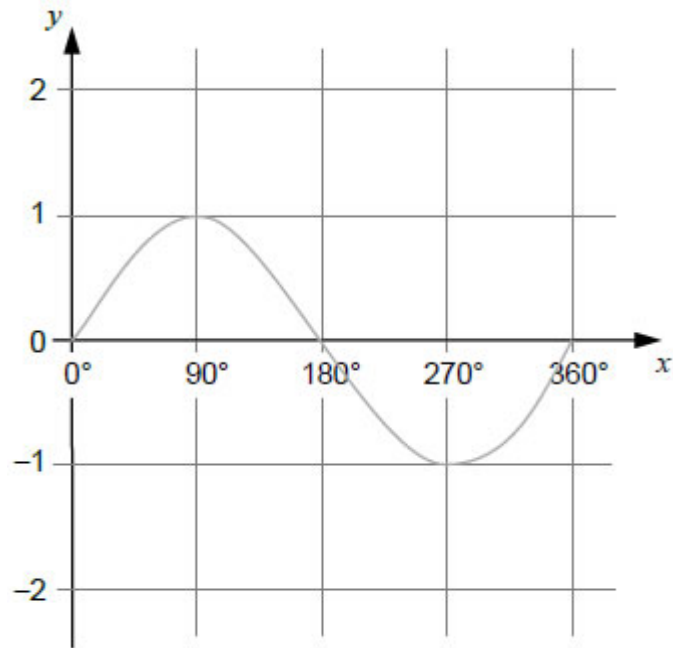
(1)

(Total 2 marks)

Q3.

(a) The graph of $y = \sin x$ is shown for $0^\circ \leq x \leq 360^\circ$

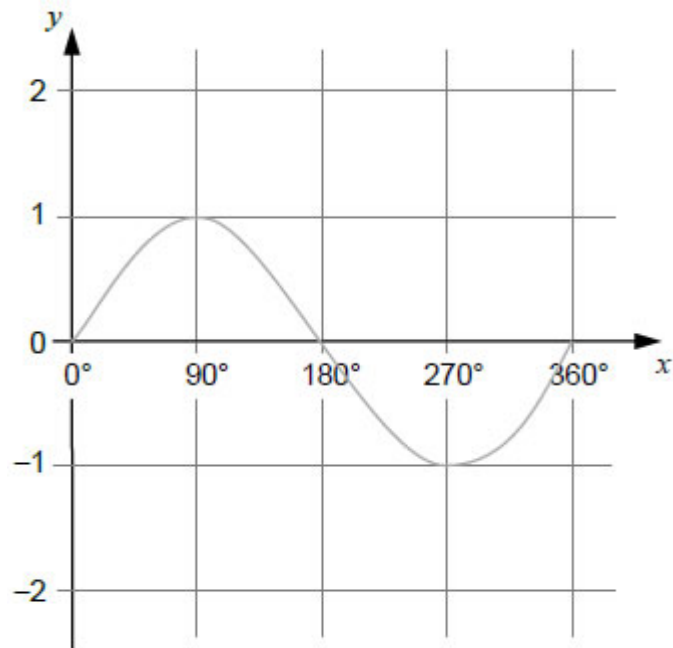
On the grid sketch the graph of $y = \sin x - 1$ $0^\circ \leq x \leq 360^\circ$



(1)

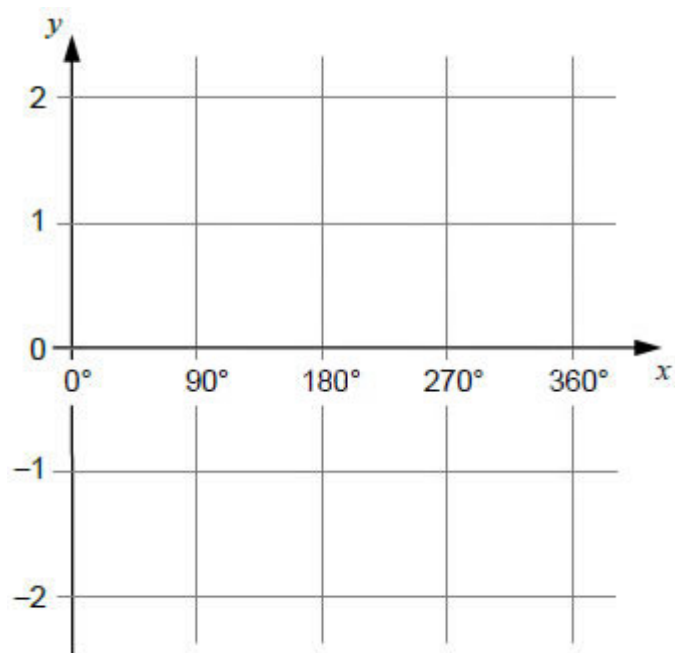
(b) The graph of $y = \sin x$ is shown on the grid for $0^\circ \leq x \leq 360^\circ$

On this grid sketch the graph of $y = -\sin x$ $0^\circ \leq x \leq 360^\circ$



(1)

(c) On this grid sketch the graph of $y = \tan x$ $0^\circ \leq x \leq 360^\circ$



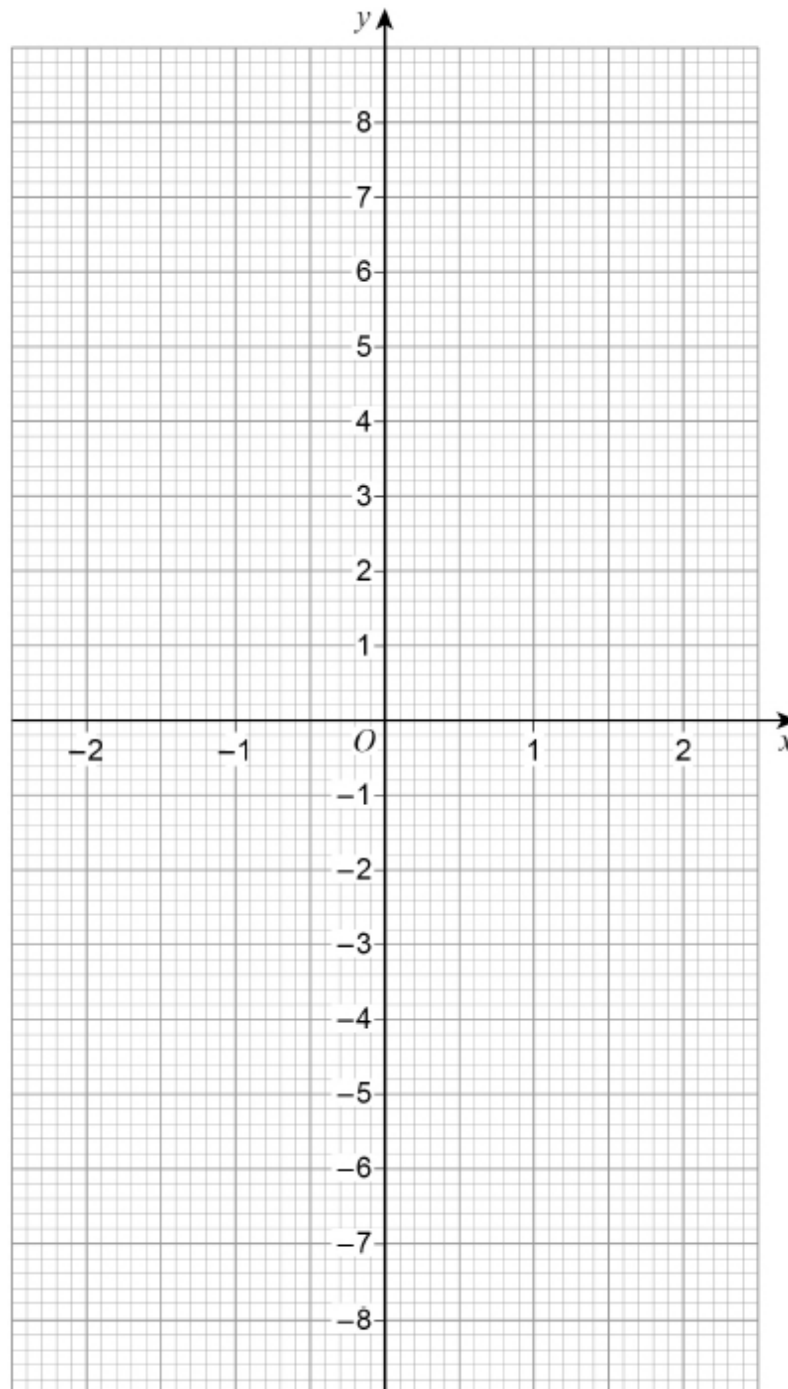
(1)
(Total 3 marks)

Calculator

Q4.

(a) $h(x) = \sqrt[3]{x}$ for all values of x

On the grid, draw the graph of the inverse function $y = h^{-1}(x)$ for $-2 \leq x \leq 2$



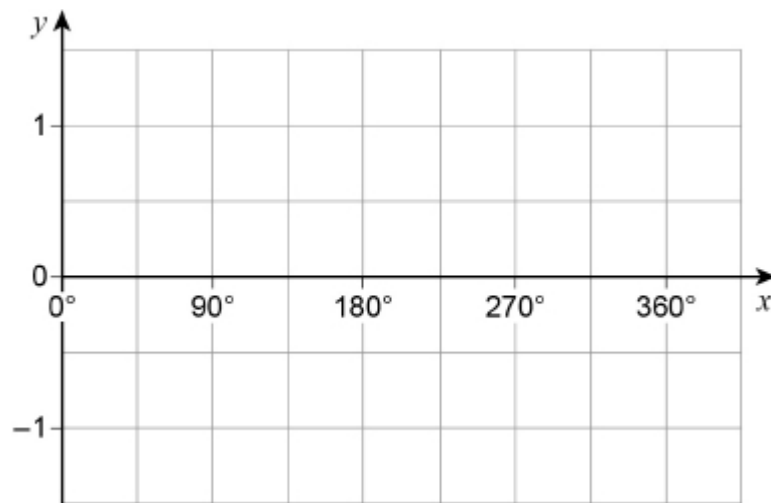
(2)

(b) For all values of x

$$f(x) = \sin x$$

$$g(x) = x + 90$$

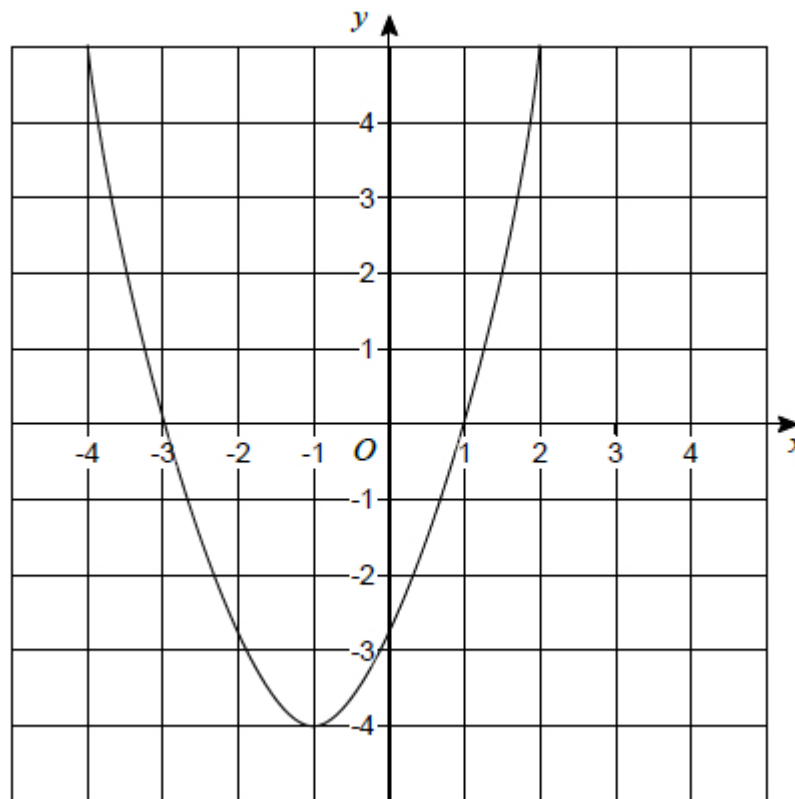
On the grid, draw the graph of the composite function $y = fg(x)$ for $0^\circ \leq x \leq 360^\circ$



(2)
(Total 4 marks)

Q5.

- (a) Here is the graph of $y = f(x)$
The graph has a turning point at $(-1, -4)$



On the grid, draw the graph of $y = f(x - 2)$

(1)

- (b) The graph of $y = -3x^2 + 4x - 5$ is reflected in the y -axis.

Work out the equation of the reflected graph.
Give your answer in its simplest form.

Answer _____

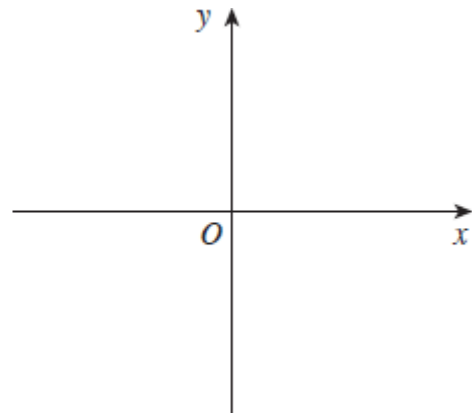
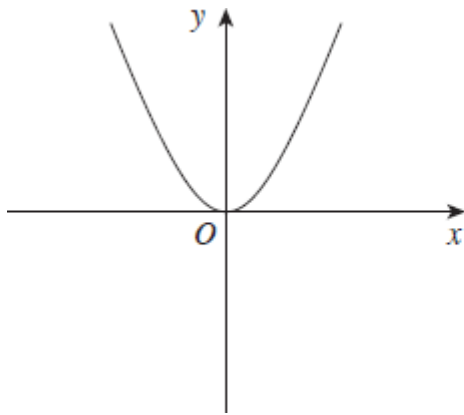
(2)

(Total 3 marks)

Q6.

- (a) The diagram shows a sketch of the graph $y = x^2$

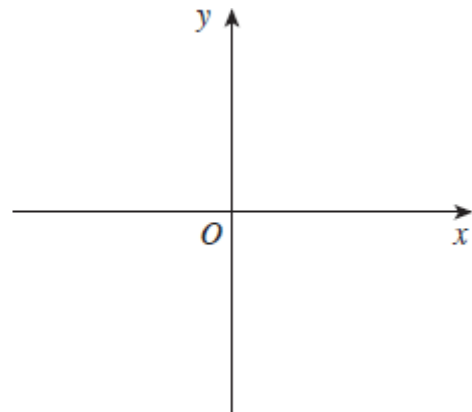
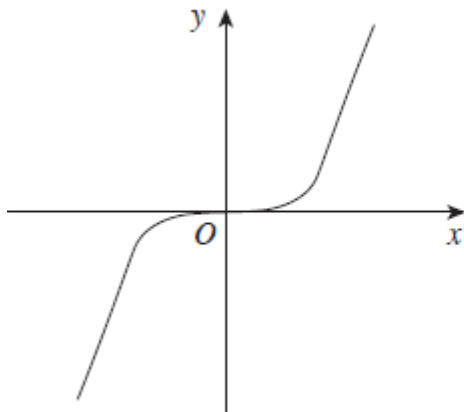
On the blank grid sketch a graph of $y = -x^2 + 2$



(2)

- (b) This diagram shows a sketch of the graph $y = x^3$

On the blank grid sketch a graph of $y = x^3$ after a translation by the vector $\begin{pmatrix} -5 \\ 5 \end{pmatrix}$



(2)

(Total 4 marks)

Q7.

The curve with equation $y = x^2 - 5x + 2$ is reflected in the x -axis.

Circle the equation of the reflected curve.

$$y = x^2 - 5x - 2$$

$$y = -x^2 + 5x + 2$$

$$y = -x^2 + 5x - 2$$

$$y = x^2 + 5x + 2$$

(Total 1 mark)

Q8.

The graph with equation $y = x^2$ is translated by vector $\begin{pmatrix} 2 \\ 0 \end{pmatrix}$
Circle the equation of the translated graph.

$$y = (x - 2)^2$$

$$y = (x + 2)^2$$

$$y = x^2 + 4$$

$$y = x^2 + 2$$

(Total 1 mark)