

Year 1 Pure Chapter 9 - Trigonometric Graphs – Exam Questions (Total Marks 27)

1. (a) Sketch, for $0 \leq x \leq 360^\circ$, the graph of $y = \sin(x + 30^\circ)$. (2)
- (b) Write down the coordinates of the points at which the graph meets the axes. (3)
- (Total 5 marks)**

2. The curve C has equation $y = \cos (x + 45)$, $0 \leq x \leq 360$

(a) Sketch C .

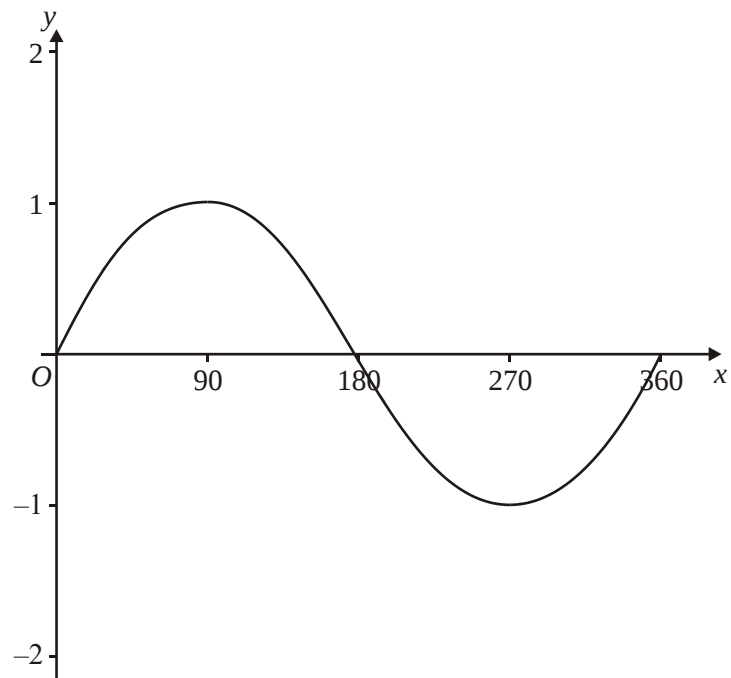
(2)

(b) Write down the exact coordinates of the points at which C meets the coordinate axes.

(3)

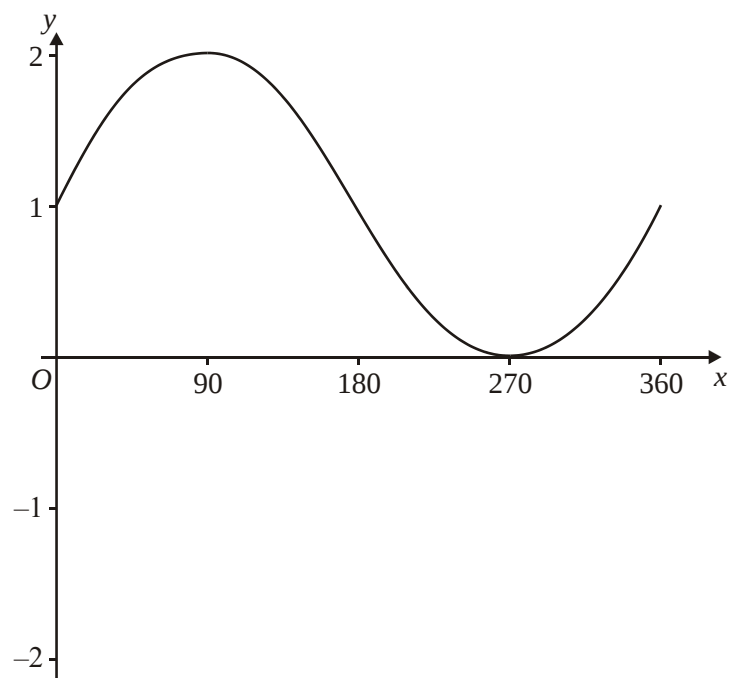
(Total 6 marks)

3. A sketch of the curve $y = \sin x^\circ$ for $0 \leq x \leq 360$ is shown below.



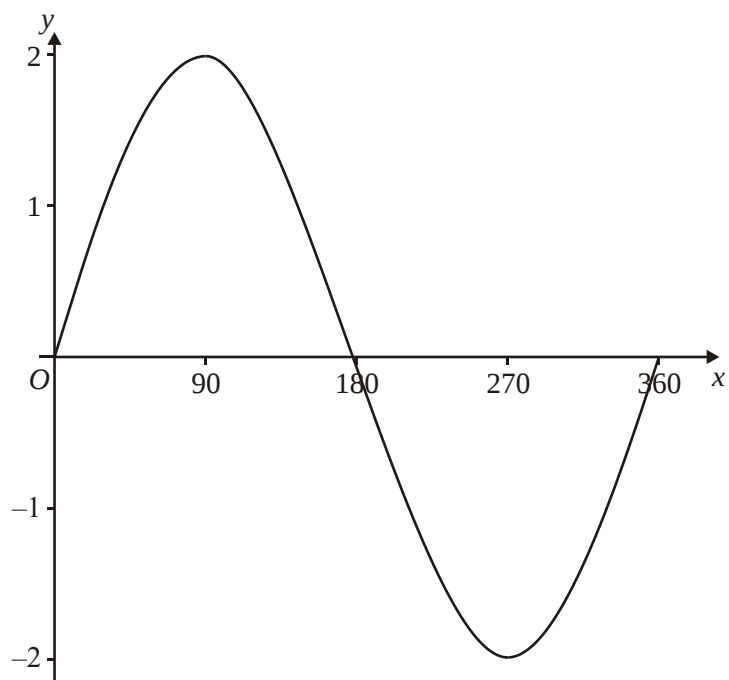
- (a) Using the sketch above, or otherwise, find the equation of each of the following two curves.

(i)



(i) Equation $y = \dots\dots\dots$

(ii)



(ii) Equation $y = \dots\dots\dots$

(2)

- (b) Describe fully the sequence of two transformations that maps the graph of $y = \sin x^\circ$ onto the graph of $y = 3 \sin 2x^\circ$

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(3)

(Total 5 marks)

4. (a) Sketch, for $0 \leq x \leq 360$, the graph of $y = 1 + \sin 2x$

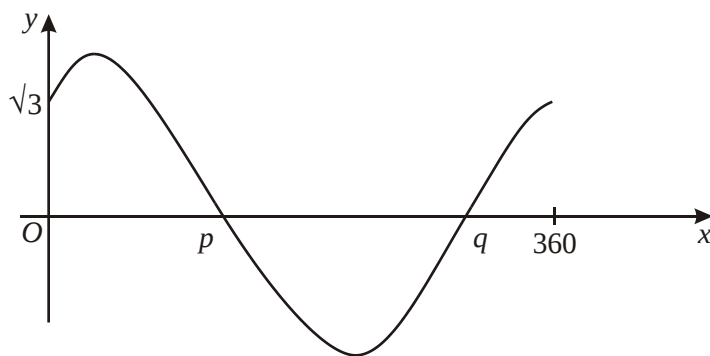
(2)

(b) Write down the exact coordinates of the points where the graph meets the coordinate axes.

(3)

(Total 5 marks)

5.



The diagram above shows the curve with equation $y = k \sin (x + 60)^\circ$, $0 \leq x \leq 360$, where k is a constant.

The curve meets the y -axis at $(0, \sqrt{3})$ and passes through the points $(p, 0)$ and $(q, 0)$.

(a) Show that $k = 2$.

(1)

(b) Write down the value of p and the value of q .

(2)

(c) Write down all the coordinates of the max and min points in the interval $-360 \leq x \leq 360$

(3)

(Total 6 marks)