

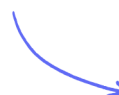
Exam Questions

Trigonometric Graphs & Equations

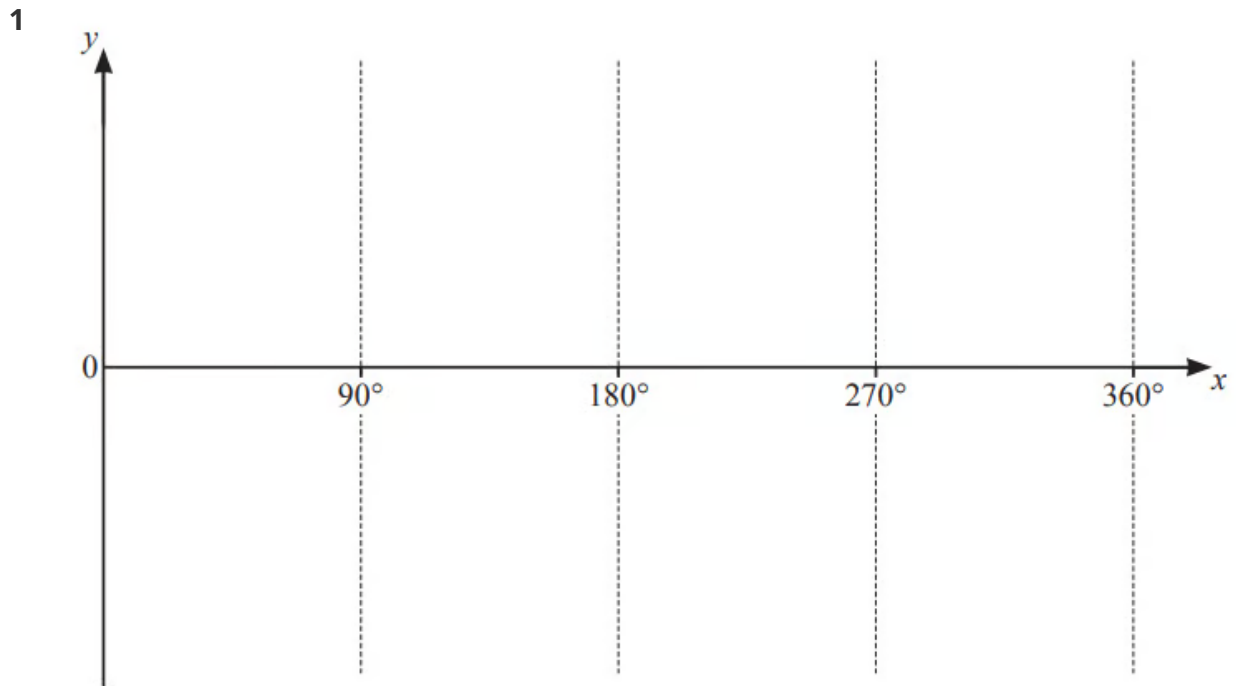
Trigonometric Graphs / Solving Trig Equations

Medium (5 questions)	/12
Hard (5 questions)	/14
Very Hard (5 questions)	/18
Total Marks	/44

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Medium Questions



On the diagram, sketch the graph of $y = \tan x$ for $0^\circ \leq x \leq 360^\circ$.

(2 marks)

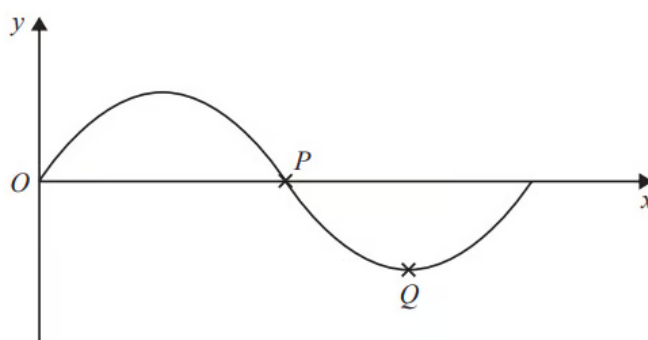
2 (a) When $\sin x^\circ = 0.36$, find the acute angle x° .

(1 mark)

(b) When $\sin x^\circ = 0.36$, find the obtuse angle x° .

(1 mark)

3 (a) The diagram shows part of a sketch of the curve $y = \sin x^\circ$



Write down the coordinates of

i) the point P

ii) the point Q

(2 marks)

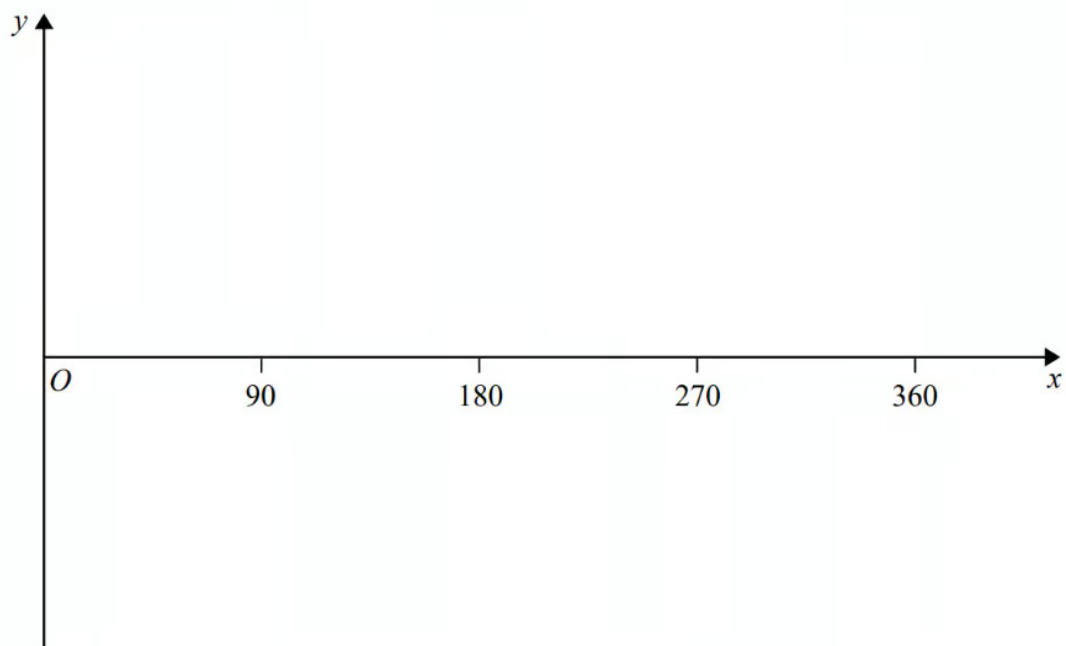
(b) Sketch the graph of $y = \tan x$ for $0^\circ \leq x \leq 360^\circ$

Show the coordinates of any points of intersection with the coordinate axes.



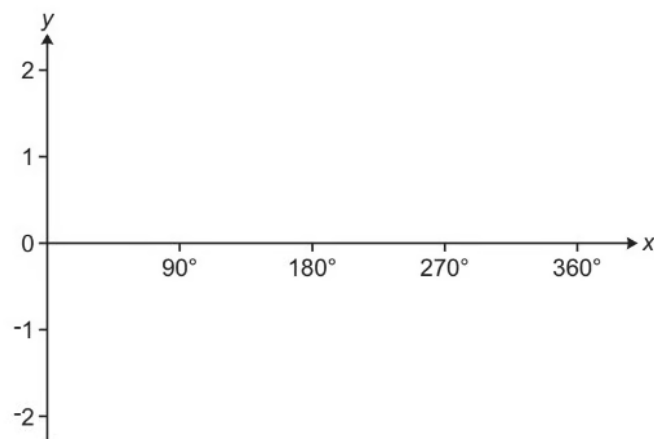
(2 marks)

4 Sketch the graph of $y = \cos x^\circ$ for $0 \leq x \leq 360$



(2 marks)

5 Sketch the graph of $y = \sin x$ for $0^\circ < x < 360^\circ$



(2 marks)

Hard Questions

- 1 Solve the equation $\tan x = 2$ for $0^\circ \leq x \leq 360^\circ$.

$x = \dots\dots\dots$ or $x = \dots\dots\dots$

(2 marks)

- 2 Solve $3\tan x = -4$ for $0^\circ \leq x \leq 360^\circ$.

$x = \dots\dots\dots$ or $x = \dots\dots\dots$

(3 marks)

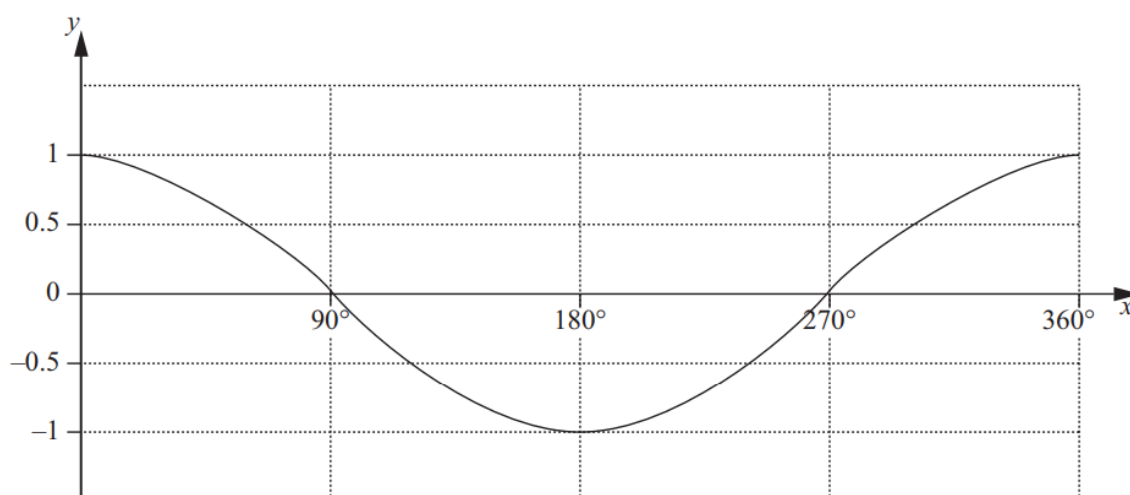
- 3 x° is an obtuse angle and $\sin x^\circ = 0.43$.

Find the value of x .

$x = \dots\dots\dots$

(2 marks)

4 (a) The grid shows the graph of $y = \cos x$ for $0^\circ \leq x \leq 360^\circ$.



Solve the equation $3\cos x = 1$ for $0^\circ \leq x \leq 360^\circ$.

Give your answers correct to 1 decimal place.

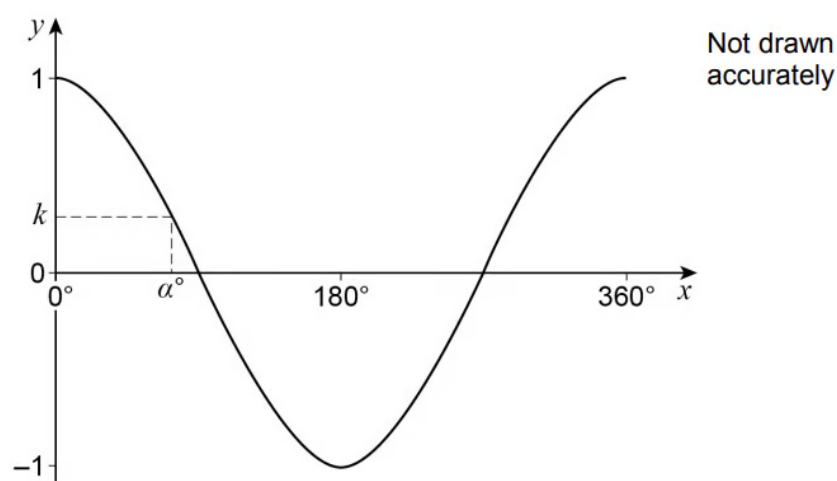
..... and

(4 marks)

(b) On the same grid, sketch the graph of $y = \sin x$ for $0^\circ \leq x \leq 360^\circ$.

(1 mark)

5 (a) Here is a sketch of $y = \cos x$ for values of x from 0° to 360°



α° is an acute angle.

$$\cos \alpha^\circ = k$$

What is the value of $\cos (180^\circ - \alpha^\circ)$?

- A. $1 - k$
- B. k
- C. $-k$
- D. $-1 - k$

(1 mark)

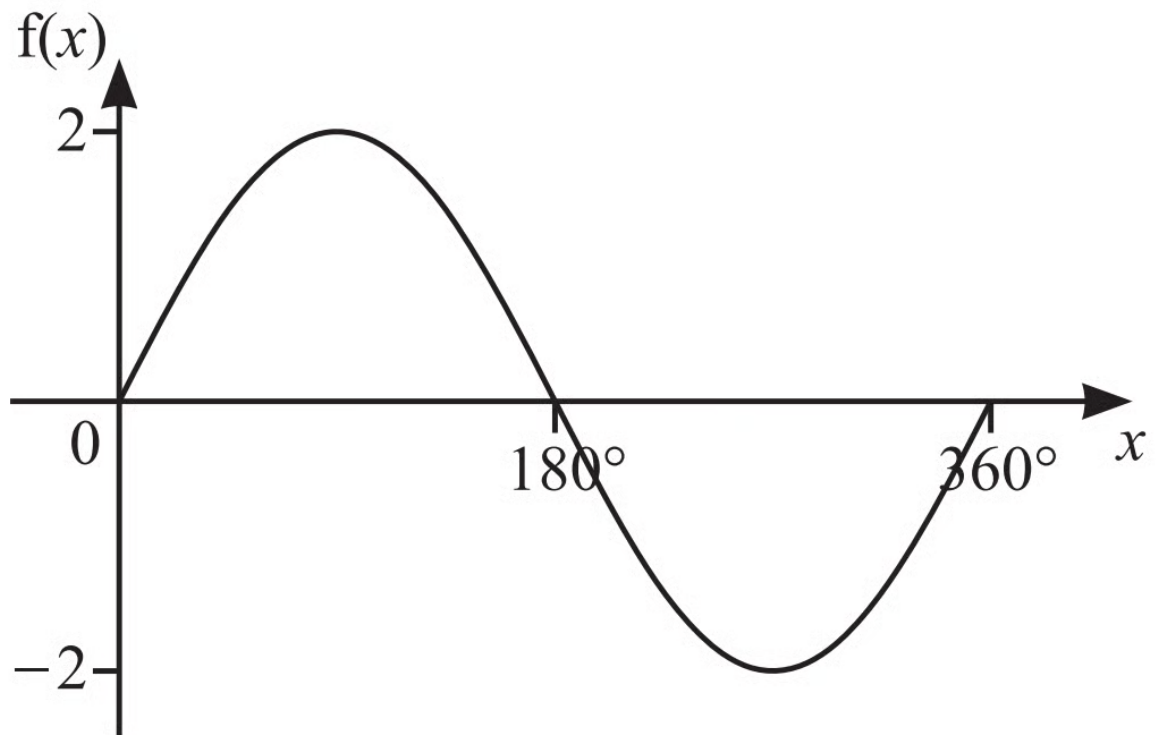
(b) What is the value of $\cos (360^\circ + \alpha^\circ)$?

- A. $k - 1$
- B. $k + 1$
- C. $-k$
- D. k

(1 mark)

Very Hard Questions

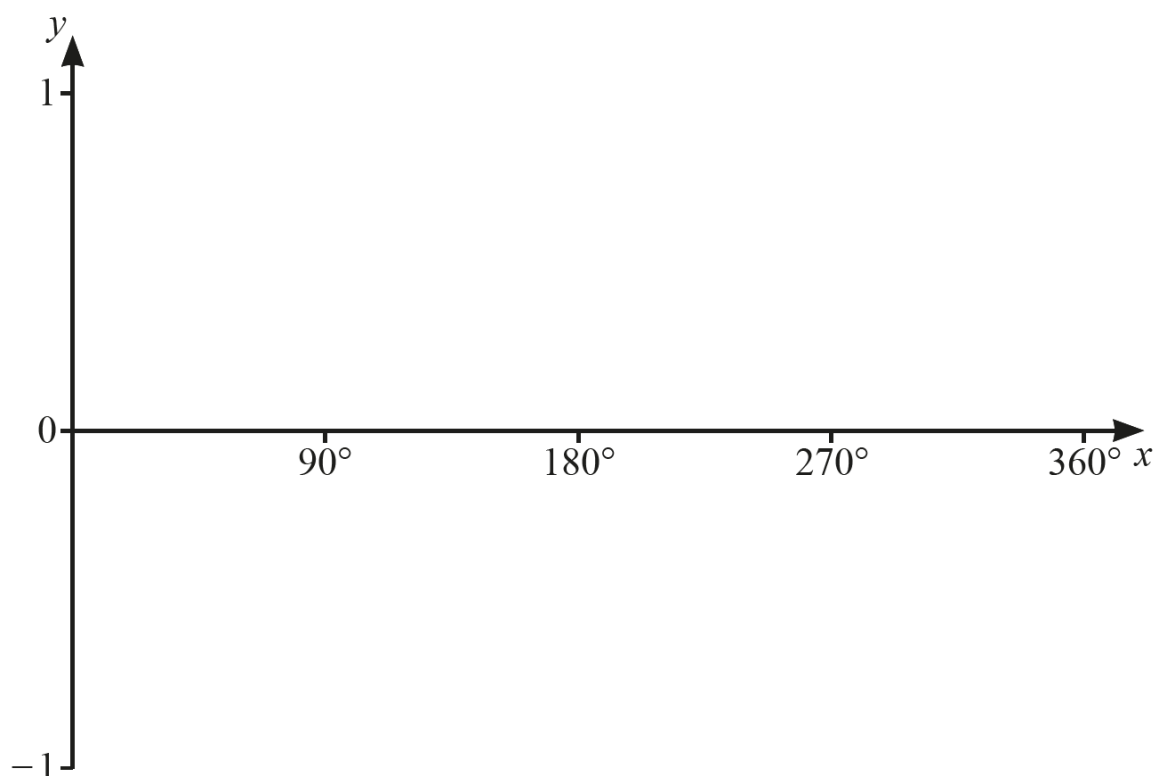
- 1 The diagrams show the graph of a function. Write down the function.



$f(x) = \dots\dots\dots$

(2 marks)

2 (a) i) On the axes, sketch the graph of $y = \sin x$ for $0^\circ \leq x \leq 360^\circ$.



[2]

ii) Describe fully the symmetry of the graph of $y = \sin x$ for $0^\circ \leq x \leq 360^\circ$.

[2]

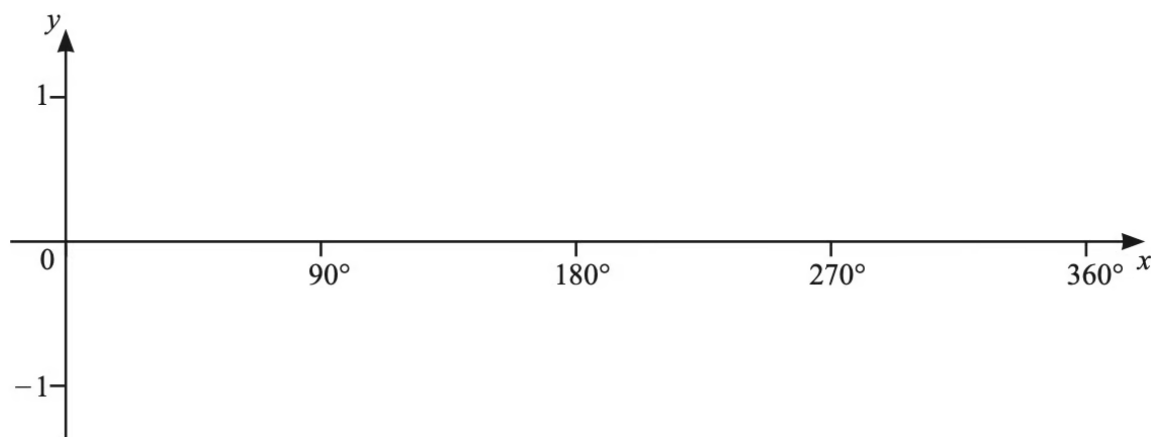
(4 marks)

(b) Solve $4 \sin x - 1 = 2$ for $0^\circ \leq x \leq 360^\circ$.

$x = \dots\dots\dots$ and $x = \dots\dots\dots$

(3 marks)

3 (a)



On the diagram, sketch the graph of $y = \cos x$ for $0^\circ \leq x \leq 360^\circ$.

(2 marks)

(b) Solve the equation $4\cos x + 2 = 3$ for $0^\circ \leq x \leq 360^\circ$.

$x = \dots\dots\dots$ and $x = \dots\dots\dots$

(3 marks)

4 Solve the equation $5 \tan x = -7$ for $0^\circ \leq x \leq 360^\circ$.

$x = \dots\dots\dots$ or $x = \dots\dots\dots$

(3 marks)

5 y is an obtuse angle.

Which **one** statement is true?

A. $\sin y > 0$ and $\cos y > 0$

B. $\sin y > 0$ and $\cos y < 0$

C. $\sin y < 0$ and $\cos y > 0$

D. $\sin y < 0$ and $\cos y < 0$

(1 mark)