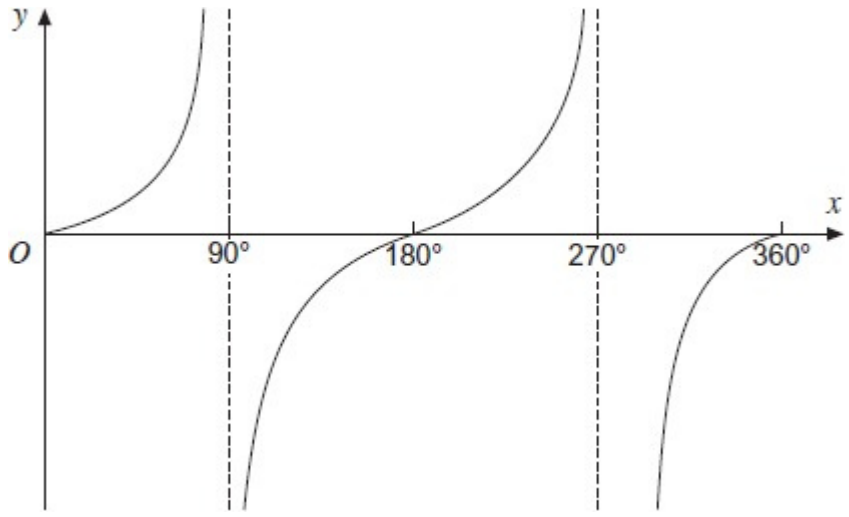
Q1.

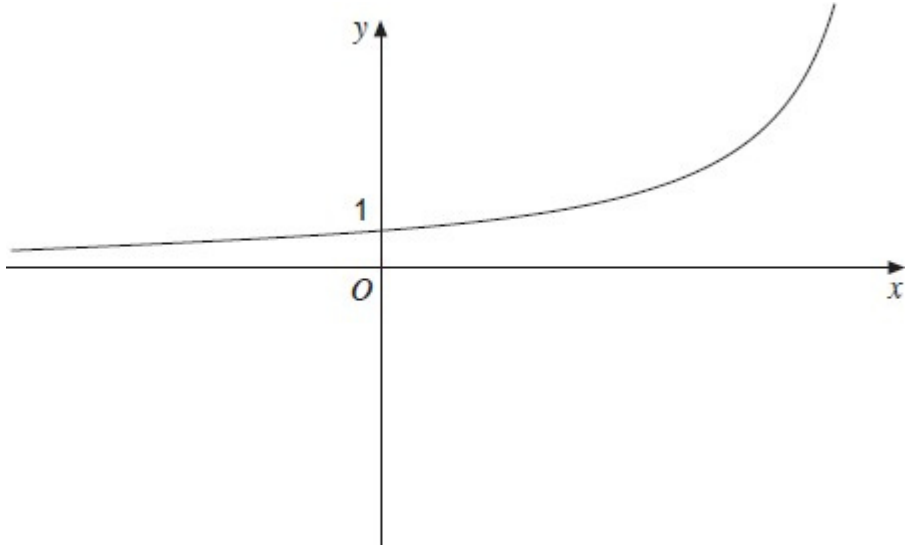
(a) Circle a possible equation for the graph shown below.



$y = \frac{1}{x}$ $y = \sin x$ $y = 2x$ $y = \tan x$

(1)

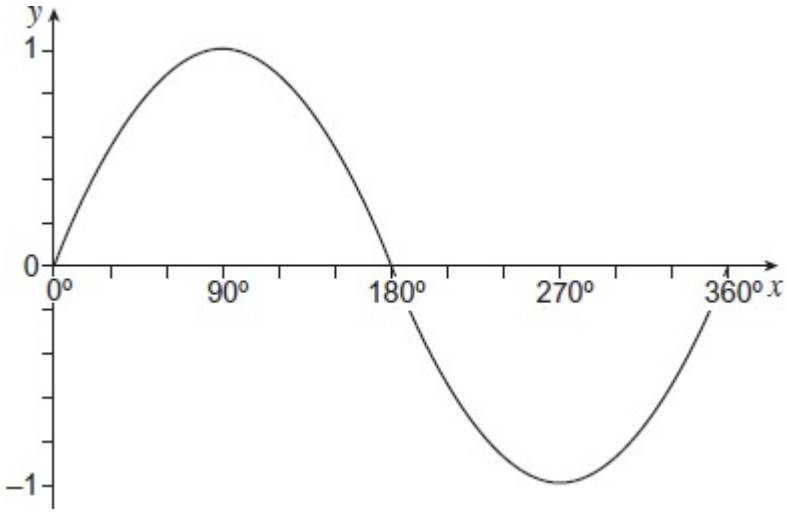
(b) Circle a possible equation for the graph shown below.



$y = \frac{1}{x}$ $y = \sin x$ $y = 2x$ $y = \tan x$

(1)
(Total 2 marks)

Q2. The graph shows $y = \sin x$ for $0° \leq x \leq 360°$



(a) $\sin x = \sin 60°$ and $90° < x < 360°$

Work out the value of x.

.....

Answer .....

(1)

(b) $\sin x = -\sin 60°$ and $180° < x < 360°$

Work out **one** of the values of x.

.....

Answer .....

(1)
(Total 2 marks)

Q3.

The depth of water, d metres, in a harbour at a time, t hours after 12 noon, is given by

$$d = 10 - 4\cos(30t)°$$

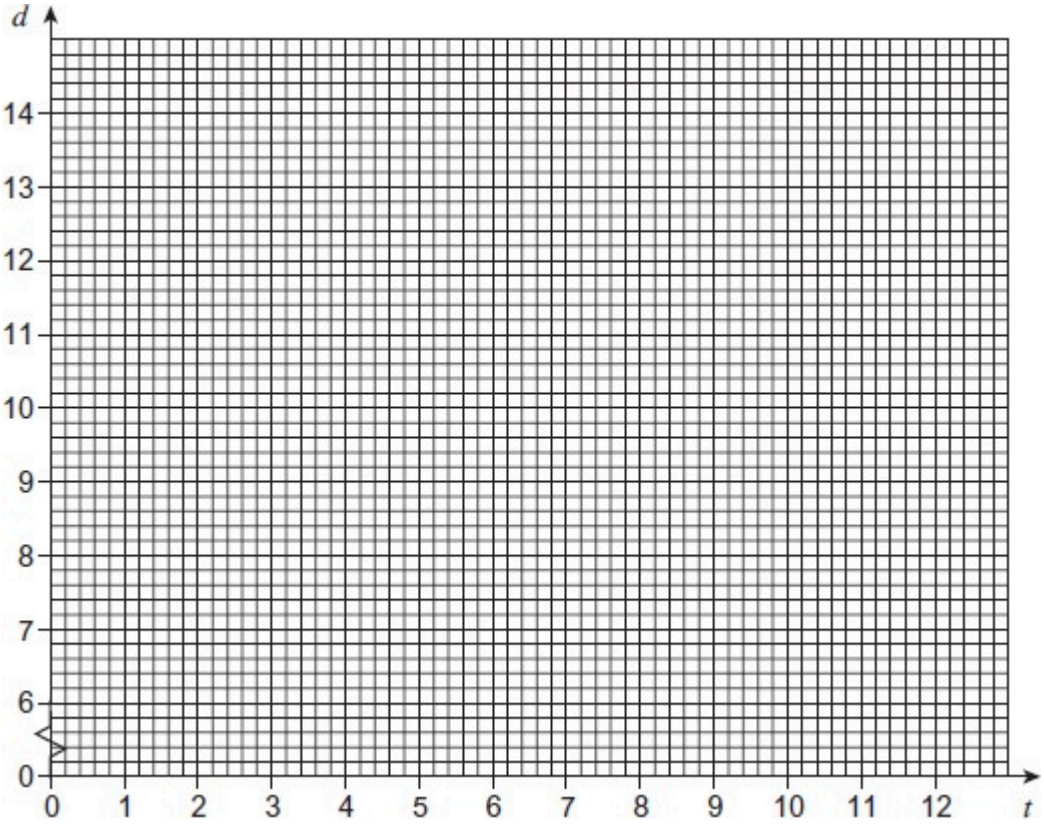
(a) Complete the table of values.

t	0	1	2	3	4	5	6	7	8	9	10	11	12
d	6	6.5	8	10	12	13.5	14	13.5	12	10	8	6.5	

.....

(1)

(b) On the grid, draw the graph of $d = 10 - 4\cos(30t)°$ for values of t from 0 to 12.



(2)

(c) The depth of water must be at least 9 metres for a ship to enter the harbour.
At 12 noon a ship is waiting to enter the harbour.

Use the graph to estimate the **earliest** time the ship can enter.

.....

.....

Answer .....

(2)

(d) A different ship enters the harbour at 4.15 pm.
The ship must leave the harbour before the depth of water falls below 9 metres.

Use the graph to estimate the maximum time the ship can stay in the harbour.
Give your answer in hours and minutes.

.....

.....

.....

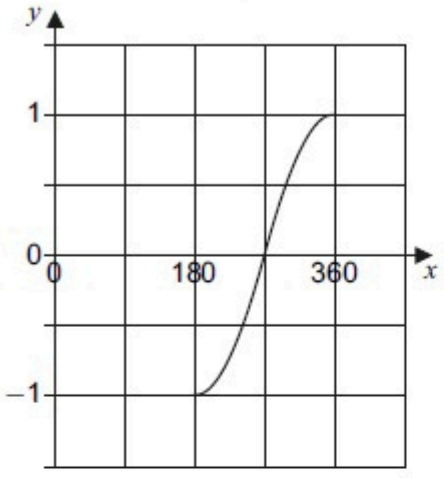
Answer ..... hours .....minutes

(3)
(Total 8 marks)

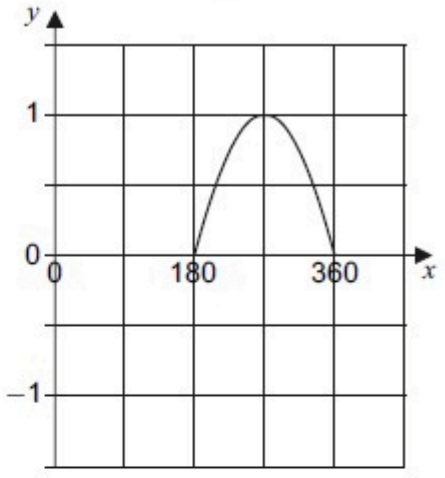
Q4.

Four graphs are shown for $180° \leqslant x \leqslant 360°$

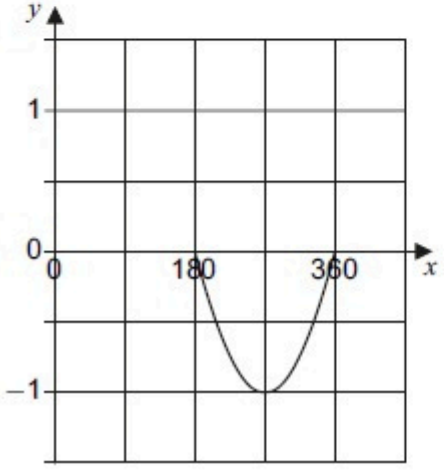
Graph A



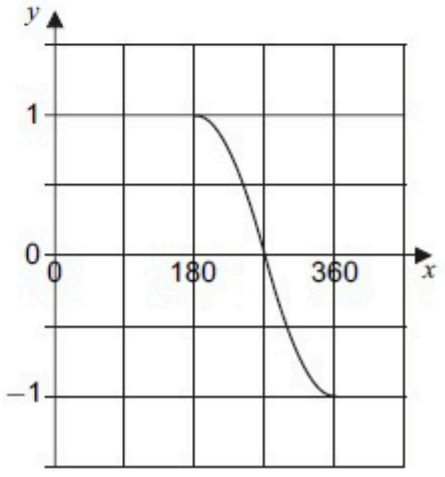
Graph B



Graph C



Graph D



(a) Which graph is $y = \sin x$?

Graph .....

(1)

(b) Which graph is $y = \cos x$?

Graph .....

(1)
(Total 2 marks)