ADA PINPOINT TOPIC PACKS

(1)Trigonometric Graphs (1 Qns)
(2)Trig Graphs and Solutions (NON CALC) (0 Qns)
(3)Transformations of Functions (11 Qns)
(4)Non to Calc Trigonometry (4 Qns)

20_to_100_Percent_Pinpoint_AI_Pack

Time Allocation = 27mins , Max = 24 Marks

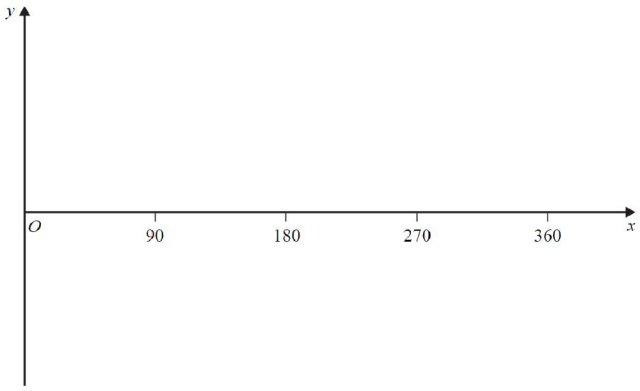
Calculated Grade Boundaries:

Grade	Marks
3+	2
4-	3
4	4
4+	6
5-	7
5	8
5+	9
6-	11
6	12
6+	13
7-	14
7	16
7+	17
8-	18
8	19
8+	21
9-	22

9	23
9+	24

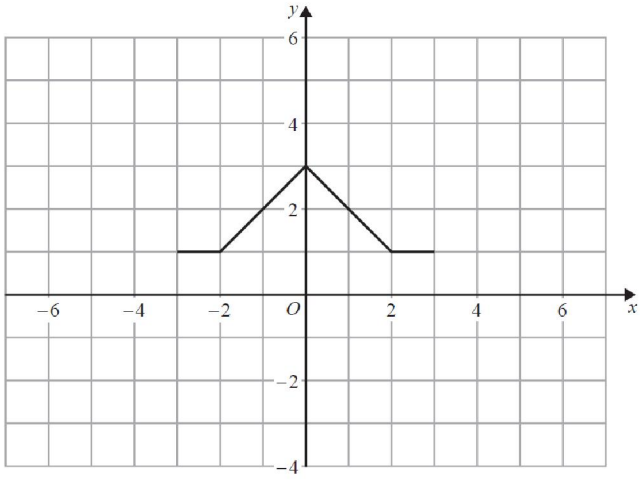
Question 1 (AO1): 27% of students got this right (4 marks)

19 (*a*) Sketch the graph of $y = \cos x°$ for $0 \leq x \leq 360$

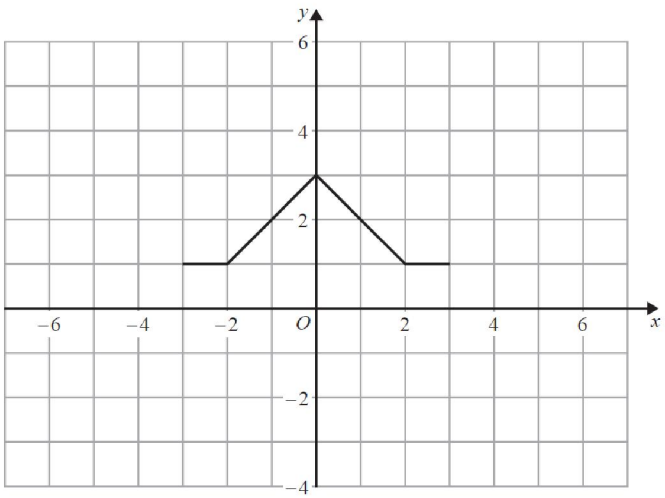


(*b*) The graph of $y = f(x)$ is shown on both grids below.

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

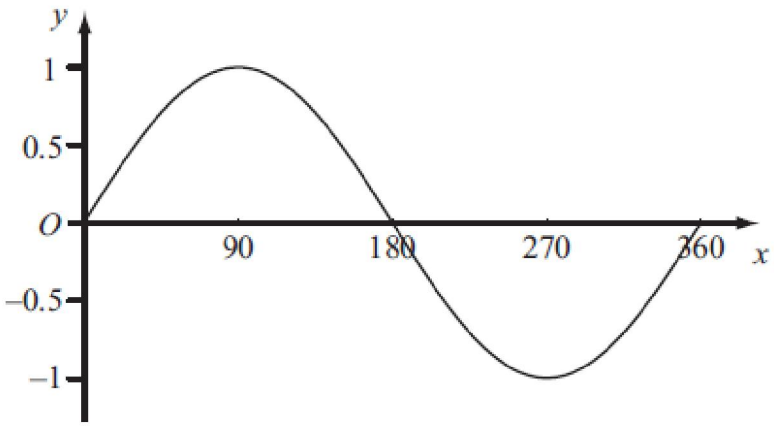


(ii) On the grid below, draw the graph of $y = f(x - 3)$



Question 2 (AO2): (No Calc) 27% of students got this right (4 marks)

19. The diagram shows a sketch of the curve $y = \sin x°$ for $0 \leq x \leq 360$



The exact value of $\sin 60° = \frac{\sqrt{3}}{2}$

(*a*) Write down the exact value of

(i) $\sin 120°$,

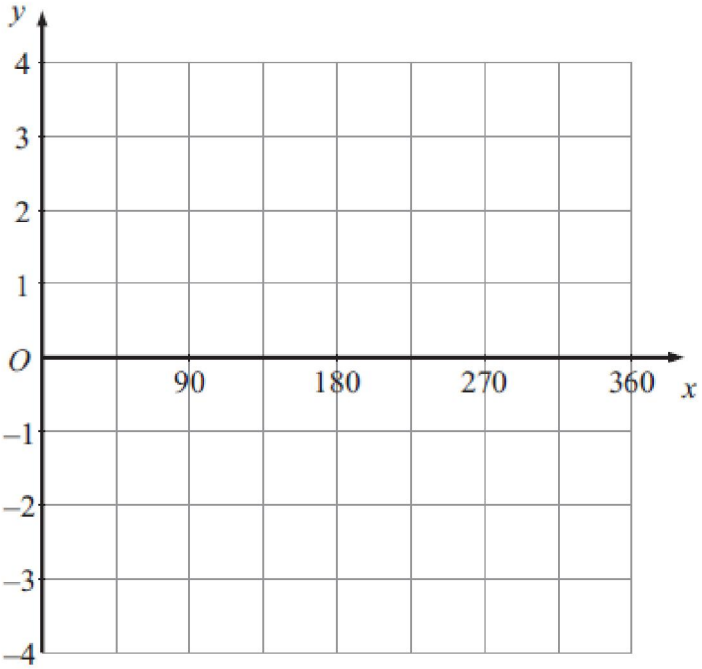
.....

(ii) $\sin 240°$.

.....

(2)

(*b*) On the grid below, sketch the graph of $y = \sin 2x°$ for $0 \leq x \leq 360$

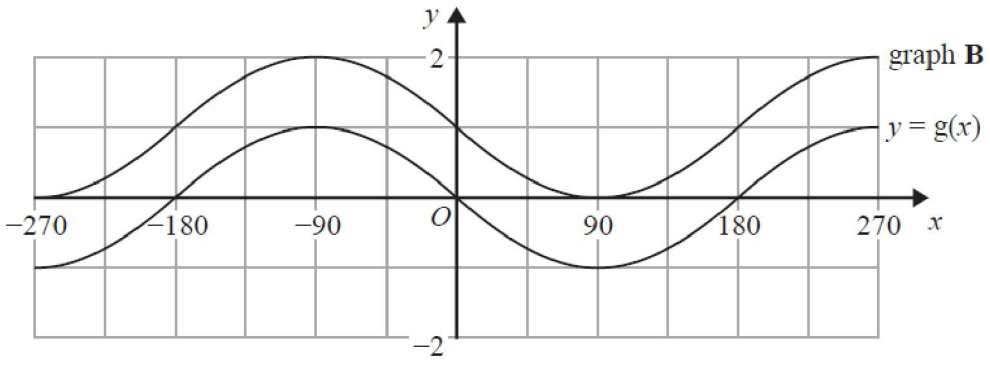


(2)

(Total 4 marks)

Question 3 (AO3): (No Calc) 23% of students got this right (1 marks)

22 b The graph of $y = g(x)$ is shown on the grid.



Graph **B** is a translation of $y = g(x)$.

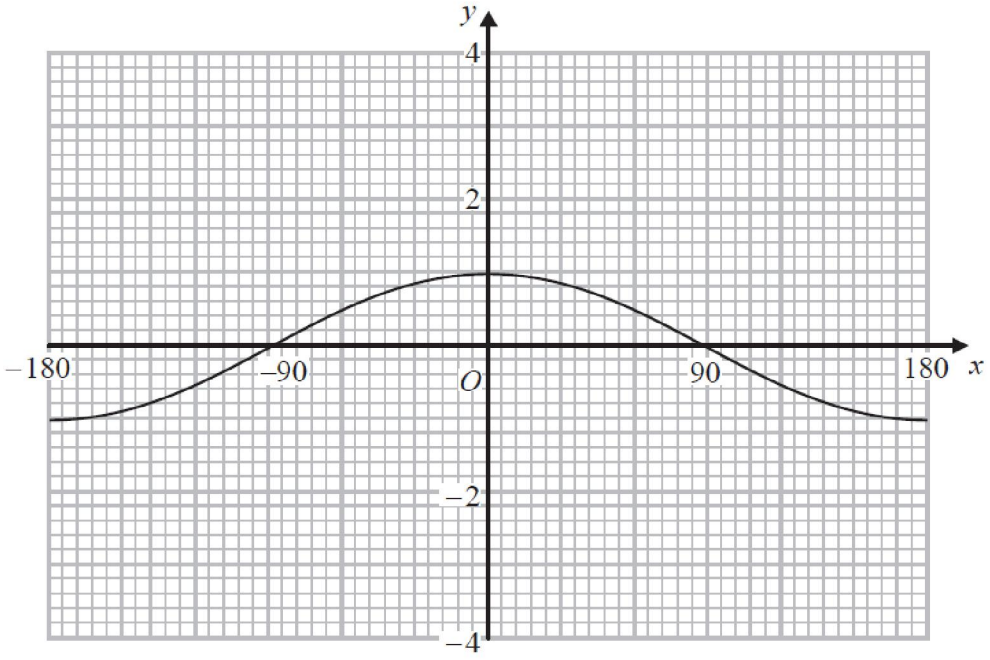
(b) Write down the equation of graph **B**.

.....

(1)

Question 4 (AO3): 21% of students got this right (4 marks)

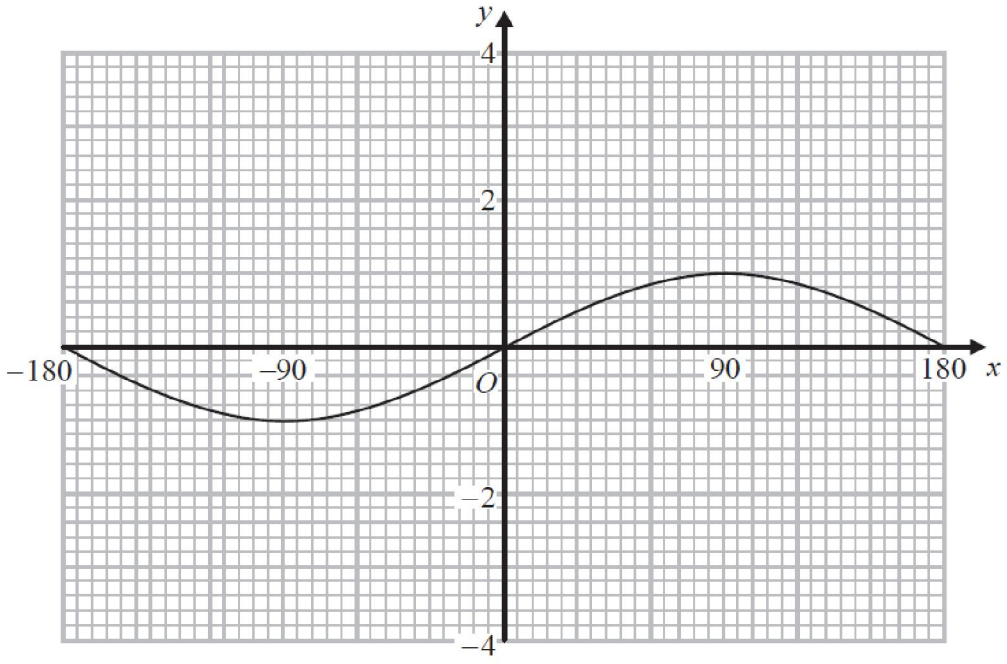
23 Given is the graph of $y = \cos x°$ for $-180 \leq x \leq 180$



(*a*) Sketch the graph of $y = \cos x° - 2$ for $-180 \leq x \leq 180$ on the grid above.

(2)

Given is the graph of $y = \sin x°$ for $-180 \leq x \leq 180$



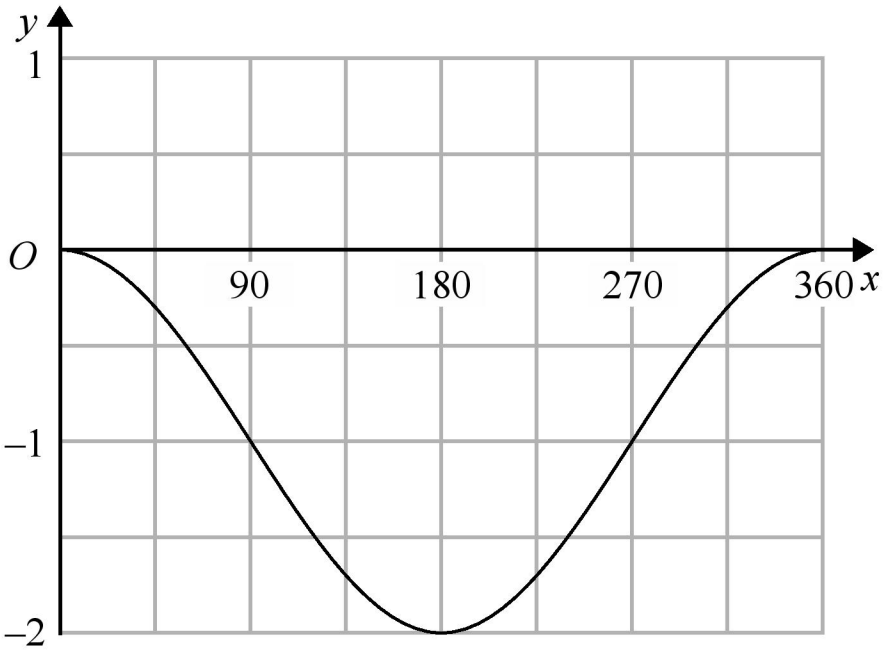
(*b*) Sketch the graph of $y = 2 \sin x°$ for $-180 \leq x \leq 180$ on the grid above.

(2)

(Total 4 marks)

Question 5 (AO2): 14% of students got this right (2 marks)

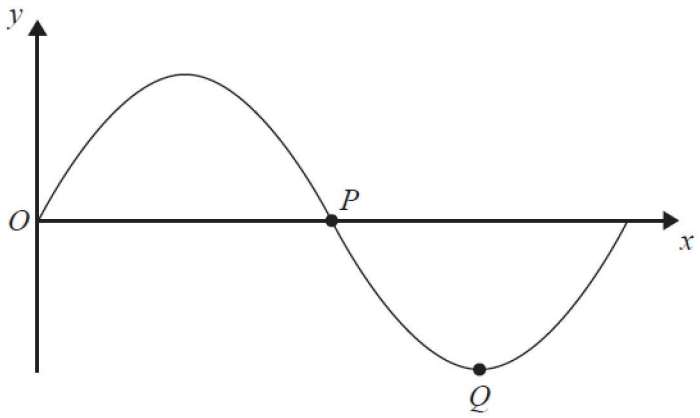
18 Here is a sketch of the curve $y = \sin(x + a)° + b$



Given that $0 < a < 360$, find the value of a and the value of b.

Question 6 (AO3): 7% of students got this right (5 marks)

26. The diagram shows part of a sketch of the curve $y = \sin x°$.



(*a*) Write down the coordinates of the point *P*.

(..... , ...)

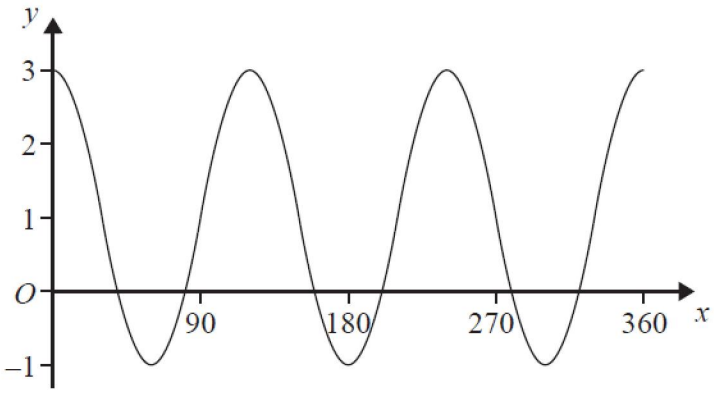
(1)

(*b*) Write down the coordinates of the point *Q*.

(..... , ...)

(1)

Here is a sketch of the curve $y = a \cos bx° + c, \quad 0 \leq x \leq 360$



(*c*) Find the values of *a*, *b* and *c*.

a = ...

b = ...

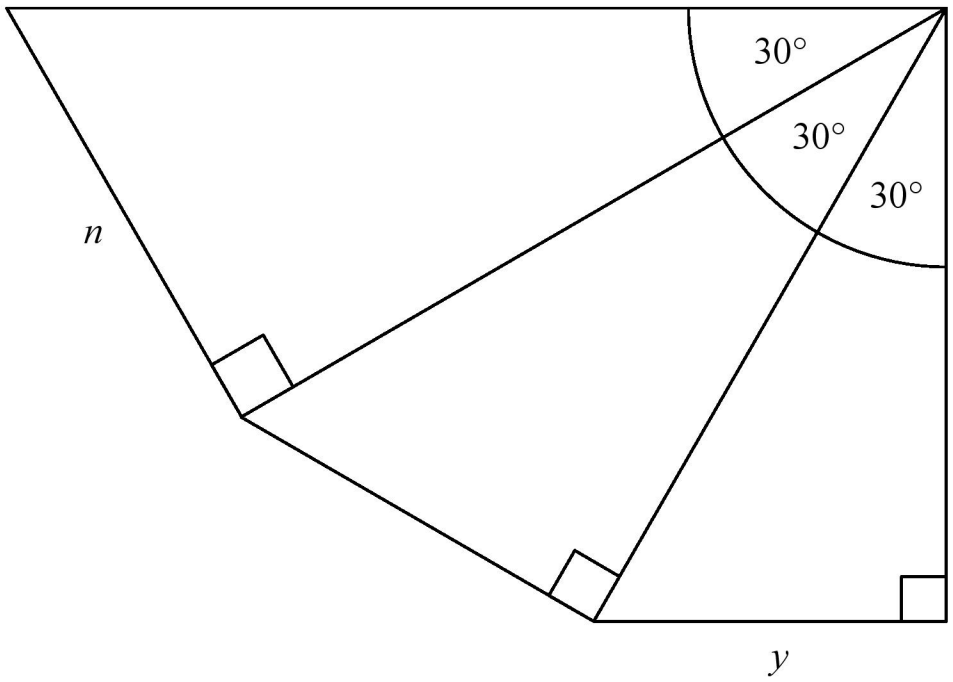
c = ...

(3)

(Total for Question 26 is 5 marks)

Question 7 (AO3): (No Calc) 3% of students got this right (4 marks)

20



The diagram shows three right-angled triangles.

Prove that $y = \frac{3}{4}n$

Answers to Qn 1 (AO1): 27% of students got this right

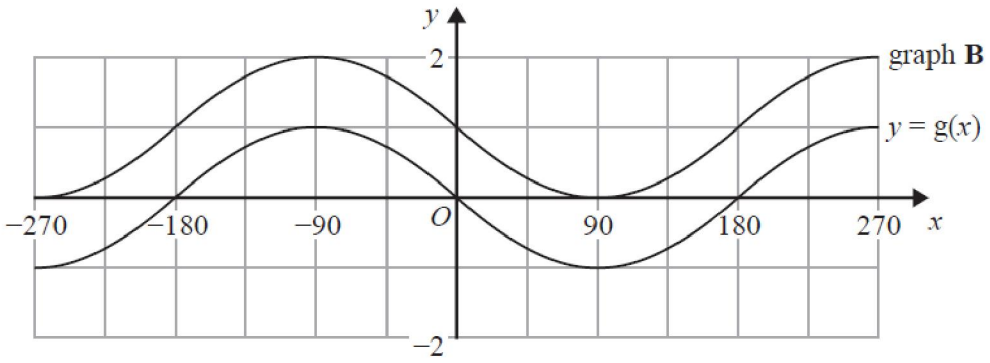
Paper 1MA1: 2H			
Question	**Working**	**Answer**	**Notes**
19 (a)		sketch	B1 for correct shape for $0 \leqslant x \leqslant 360$ B1 for fully correct sketch with labels
(b)(i)		sketch	B1 cao
(ii)		sketch	B1 cao

Answers to Qn 2 (AO2): (No Calc) 27% of students got this right

19.	(*a*)(i)		$\frac{\sqrt{3}}{2}$	2	B1 cao
	(ii)		$-\frac{\sqrt{3}}{2}$		B1 cao
	(*b*)			2	B2 cao [B1 for sine curve starting from the origin with amplitude 4, OR B1 cuts *x* axis at 90, 180, 270, 360 and starts from 0]

Answers to Qn 3 (AO3): (No Calc) 23% of students got this right

22 b The graph of $y = g(x)$ is shown on the grid.



Graph **B** is a translation of $y = g(x)$.

(b) Write down the equation of graph **B**.

Vertical translation: $y = g(x) + 1$

.....

(1)

Answers to Qn 4 (AO3): 21% of students got this right

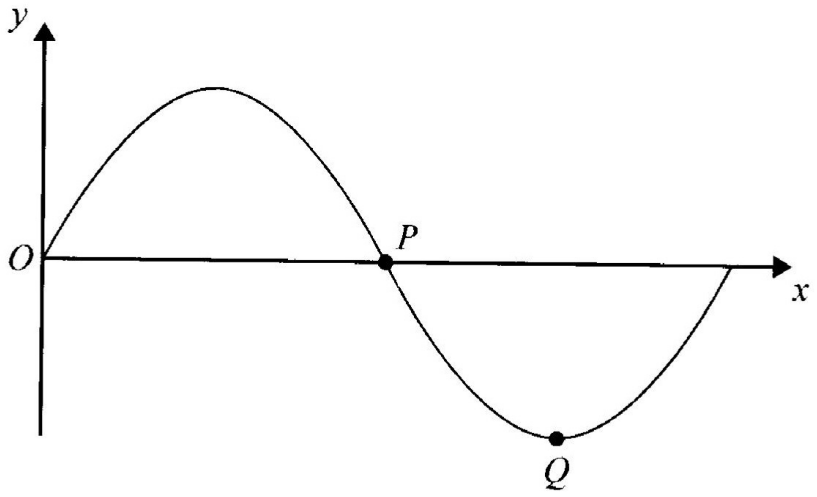
23	(a)		Graph drawn	2	B2 correct graph drawn (B1 for a graph translated up/down)
	(b)		Graph drawn	2	B2 for correct graph drawn (B1 for a graph reflected in the x axis or stretched by sf 2 parallel to the y axis)

Answers to Qn 5 (AO2): 14% of students got this right

Question	Working	Answer	Mark	Notes
18		$a = 90$ $b = -1$	B1 B1	for $a = 90$ for $b = -1$

Answers to Qn 6 (AO3): 7% of students got this right

26 The diagram shows part of a sketch of the curve $y = \sin x°$.



(a) Write down the coordinates of the point P.

(180 , 0)

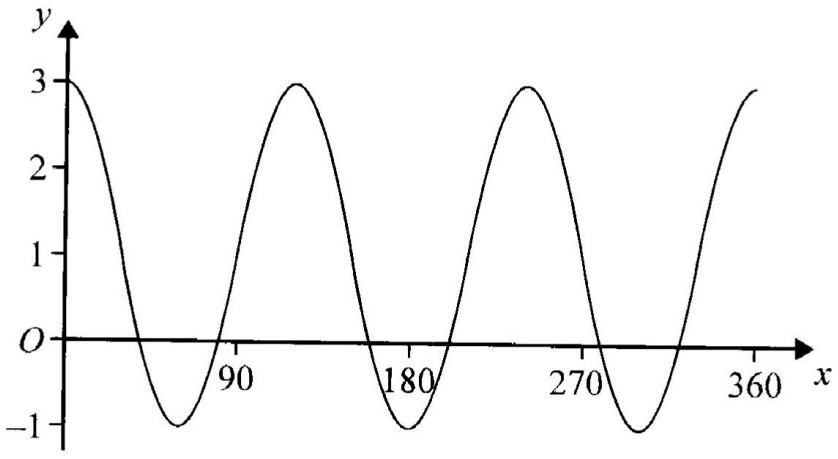
(1)

(b) Write down the coordinates of the point Q.

(270 , −1)

(1)

Here is a sketch of the curve $y = a\cos bx° + c, \quad 0 \leqslant x \leqslant 360$



(c) Find the values of a, b and c.

$a =$ 2

$b =$ 3

$c =$ 1

(3)

Answers to Qn 7 (AO3): (No Calc) 3% of students got this right

Question	Working	Answer	Mark	Notes
20		Proof	B1	for using any correct trig value for 30°, e.g. sin 30 = 0.5, cos 30 = $\frac{\sqrt{3}}{2}$ or tan 30 = $\frac{1}{\sqrt{3}}$
			M1	for hypotenuse of small triangle = $2y$ or hypotenuse of large triangle = $2n$
			A1	for method to find the hypotenuse of middle triangle, e.g. $\sqrt{(2n)^2 - n^2}$ $(=\sqrt{3}n)$
			A1	for a correct equation linking y and n and correct working leading to the given result