

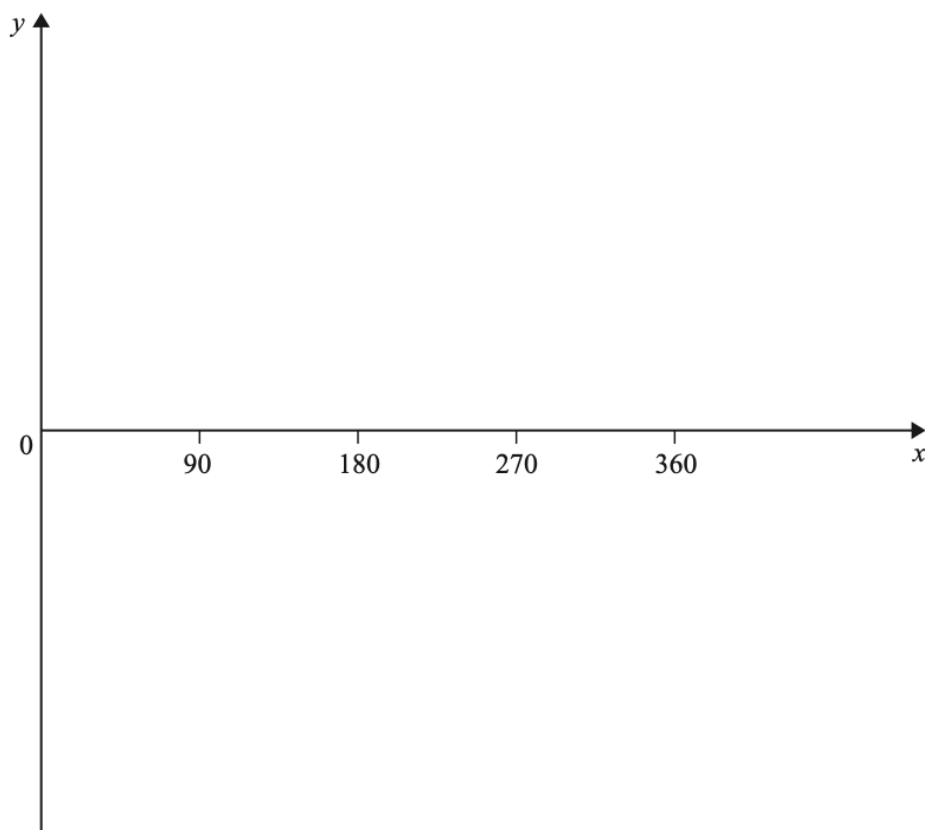
Trig Graphs Worksheet

www.mymathscloud.com

Questions in past papers often come up combined with other topics.
Topic tags have been given for each question to enable you to know if you can do the question or whether you need to wait to cover the additional topic(s).

Scan the QR code(s) or click the link for instant detailed model solutions!

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



(Total for Question 11 is 2 marks)

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Mark Scheme

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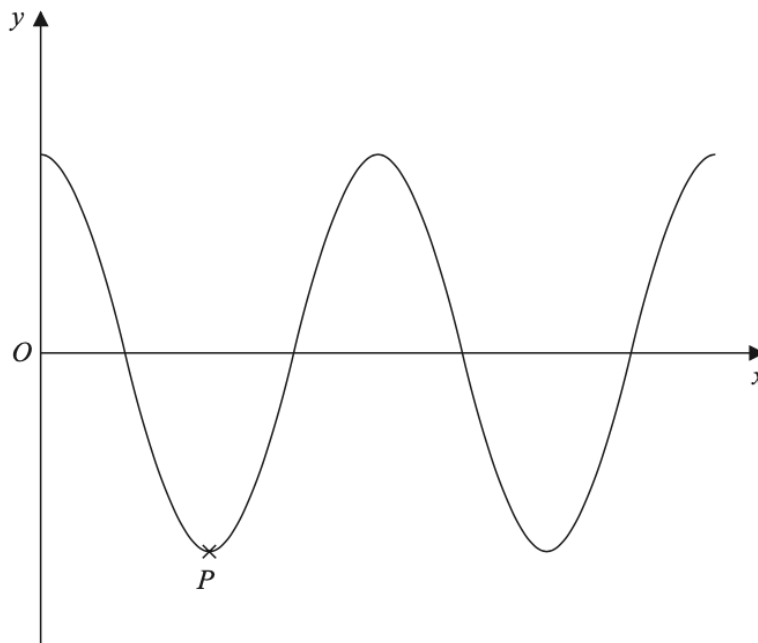
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21



The diagram shows a sketch of part of the curve with equation $y = \cos x^\circ$
 P is a minimum point on the curve.

Write down the coordinates of P .

(..... ,)

(Total for Question 21 is 2 marks)

SCAN ME!



Mark Scheme

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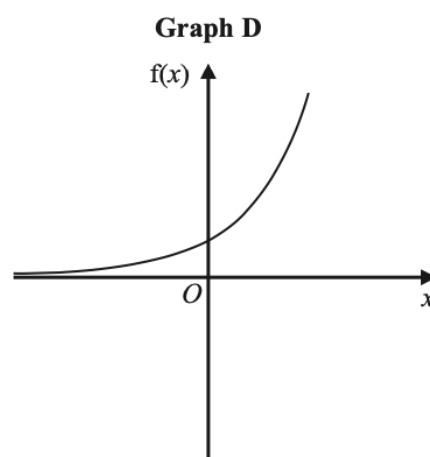
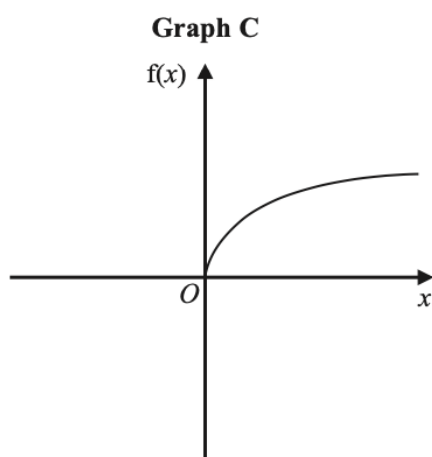
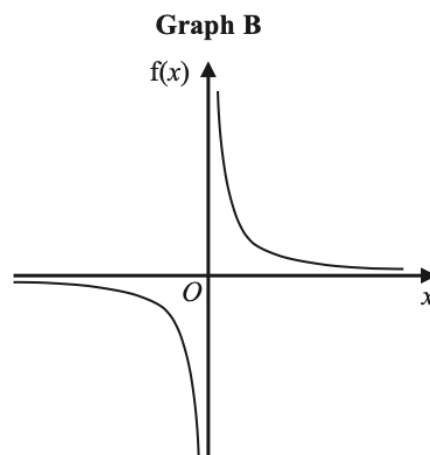
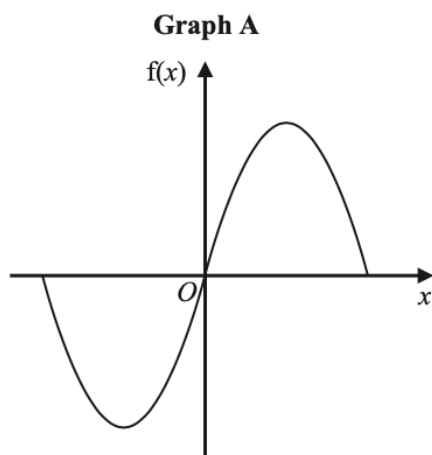
SCAN ME!



Written Mark Scheme

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17 Here are four graphs.



The graphs represent four different types of function f .

Match each description of the function in the table to the letter of its graph.

Description of function	Graph
$f(x)$ is inversely proportional to x	
$f(x)$ is a trigonometrical function	
$f(x)$ is an exponential function	
$f(x)$ is directly proportional to $\sqrt{x}$	

(Total for Question 17 is 2 marks)

SCAN ME!



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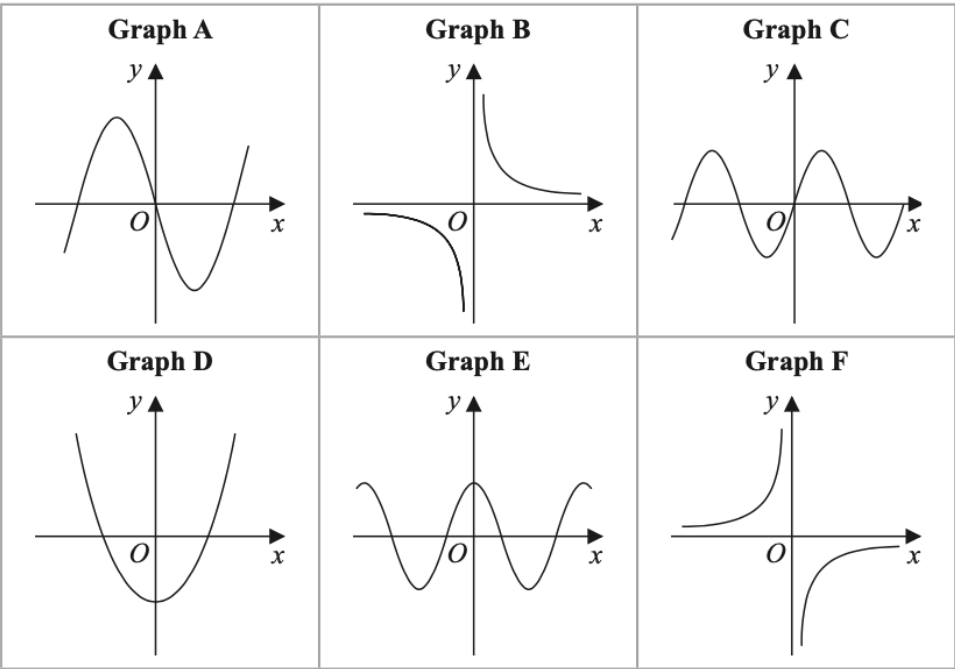
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18 Here are 6 graphs.



Complete the table below with the letter of the graph that could represent each given equation.

Write your answers on the dotted lines.

Equation	Graph
$y = \sin x$	
$y = -\frac{3}{x}$	
$y = 4x^3 - 5x$	

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(Total for Question 18 is 3 marks)

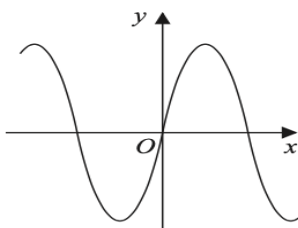
SCAN ME!



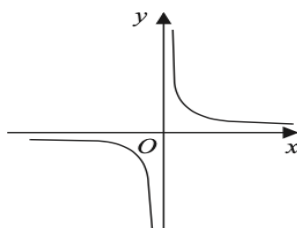
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16 Here are nine graphs.

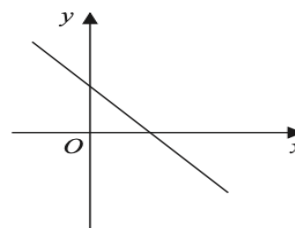
Graph A



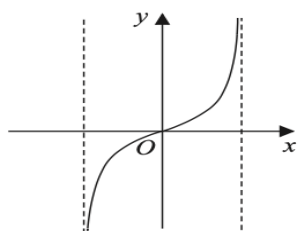
Graph B



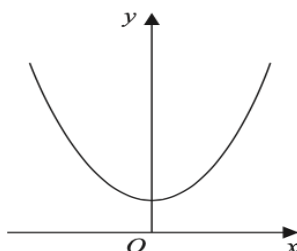
Graph C



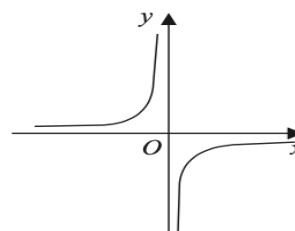
Graph D



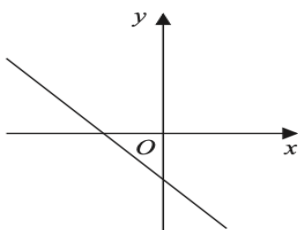
Graph E



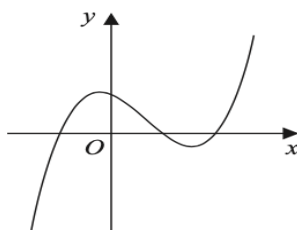
Graph F



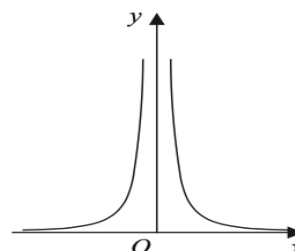
Graph G



Graph H



Graph I



Complete the table below with the letter of the graph that could represent each given equation. Write each answer on the dotted line.

Equation	Graph
$y = -2x + 3$	
$y = -\frac{1}{x}$	
$y = \tan x^\circ$	
$y = (x + 1)(x - 1)(x - 2)$	

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Mark Scheme

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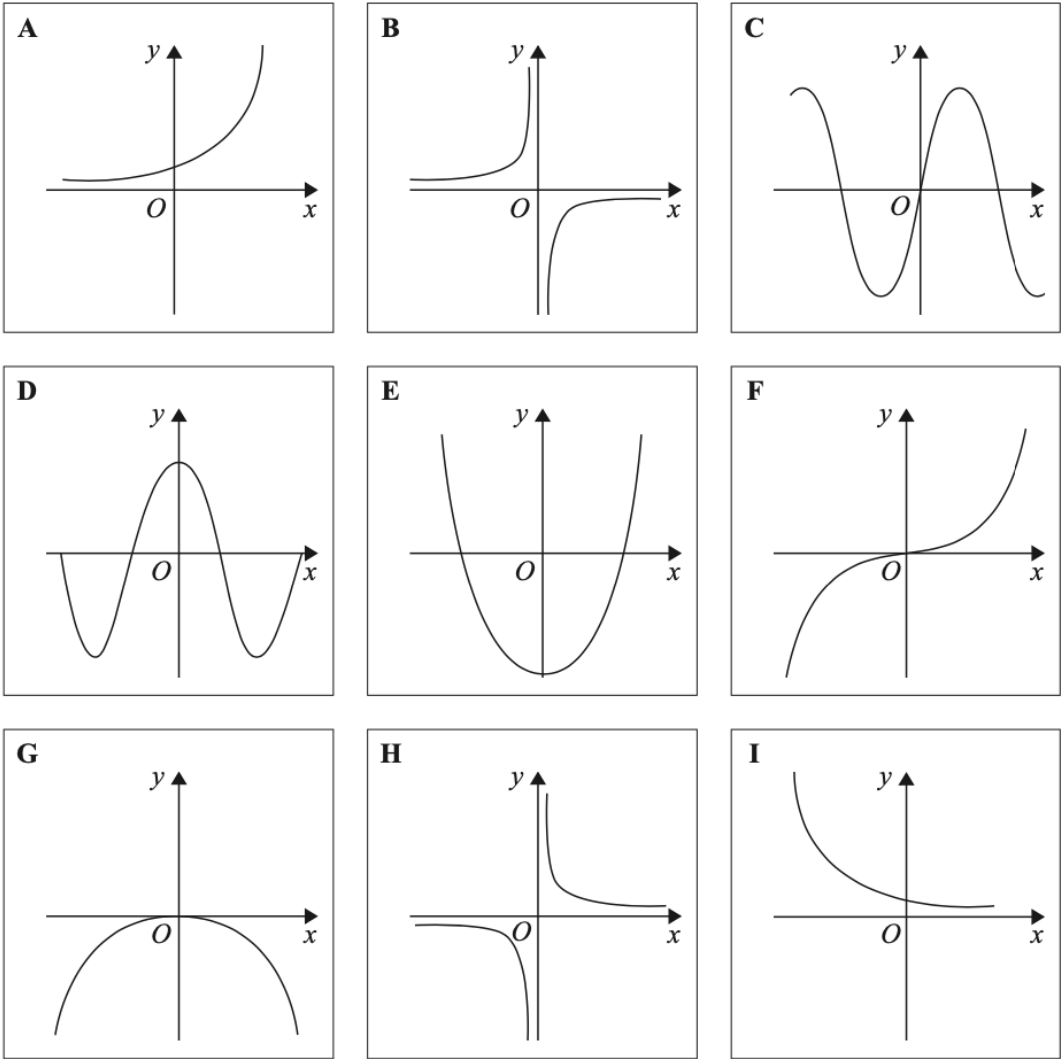


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(Total for Question 16 is 3 marks)

14 Here are some graphs.



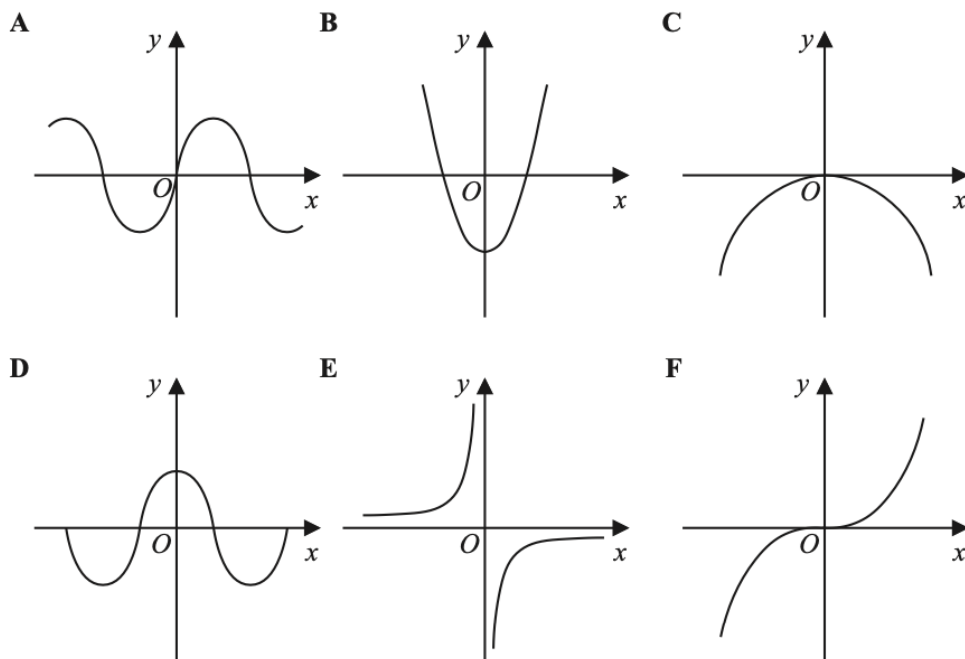
In the table below, match each equation with the letter of its graph.

Equation	Graph
$y = \sin x$	
$y = x^3 + 4x$	
$y = 2^x$	
$y = \frac{4}{x}$	

(Total for Question 14 is 3 marks)



16 Here are six graphs.



Write down the letter of the graph that could have the equation

(i) $y = -\frac{1}{x}$

.....
(1)

(ii) $y = \sin x^\circ$

.....
(1)

(Total for Question 16 is 2 marks)

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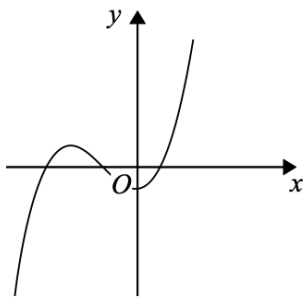
SCAN ME!



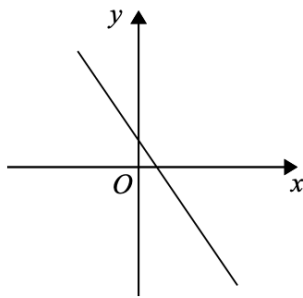
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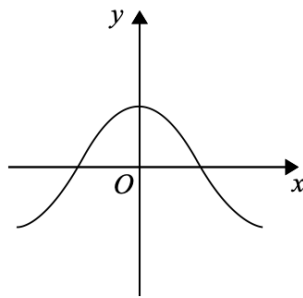
19 Here are nine graphs.



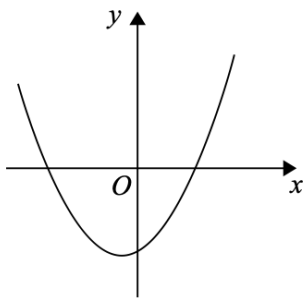
Graph A



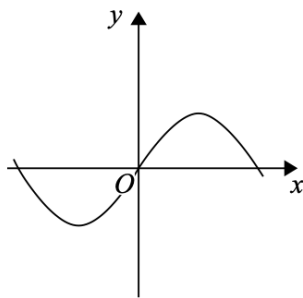
Graph B



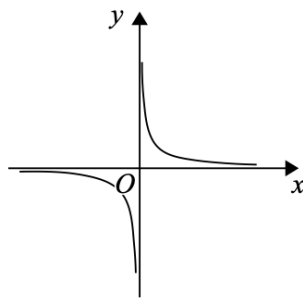
Graph C



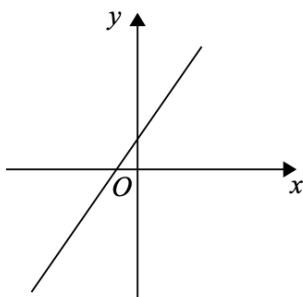
Graph D



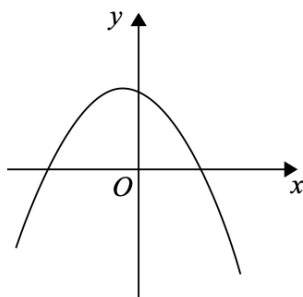
Graph E



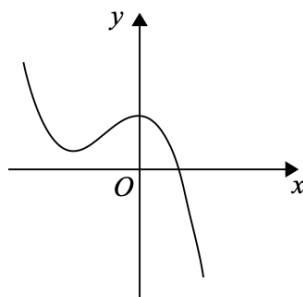
Graph F



Graph G



Graph H



Graph I

Complete the table below with the letter of the graph that could represent each given equation.

Equation	Graph
$y = \sin x$	
$y = 2 - 3x$	
$y = x^2 + x - 6$	
$y = x^3 + 3x^2 - 2$	

(Total for Question 19 is 3 marks)

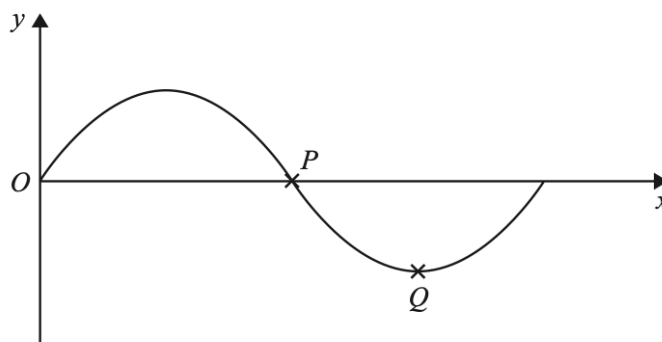


Mark Scheme
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16 The diagram shows part of a sketch of the curve $y = \sin x^\circ$



(a) Write down the coordinates of

(i) the point P

(.....,))

(ii) the point Q

(.....,)

(2)

(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)

(Total for Question 16 is 4 marks)

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20 The table shows some values of x and y that satisfy the equation $y = a \cos x^\circ + b$

x	0	30	60	90	120	150	180
y	3	$1 + \sqrt{3}$	2	1	0	$1 - \sqrt{3}$	-1

Find the value of y when $x = 45$

.....
(Total for Question 20 is 4 marks)

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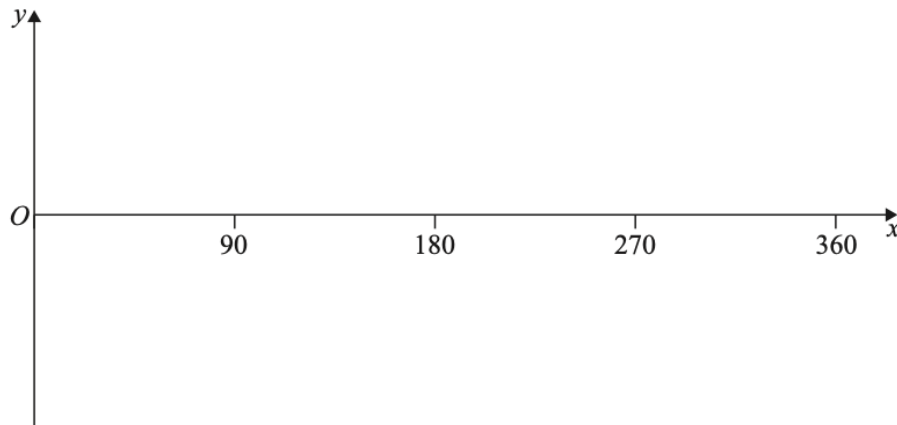
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22 (a) Sketch the graph of $y = \sin x^\circ$ for $0 \leq x \leq 360$



(2)

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

(2)

(Total for Question 22 is 4 marks)

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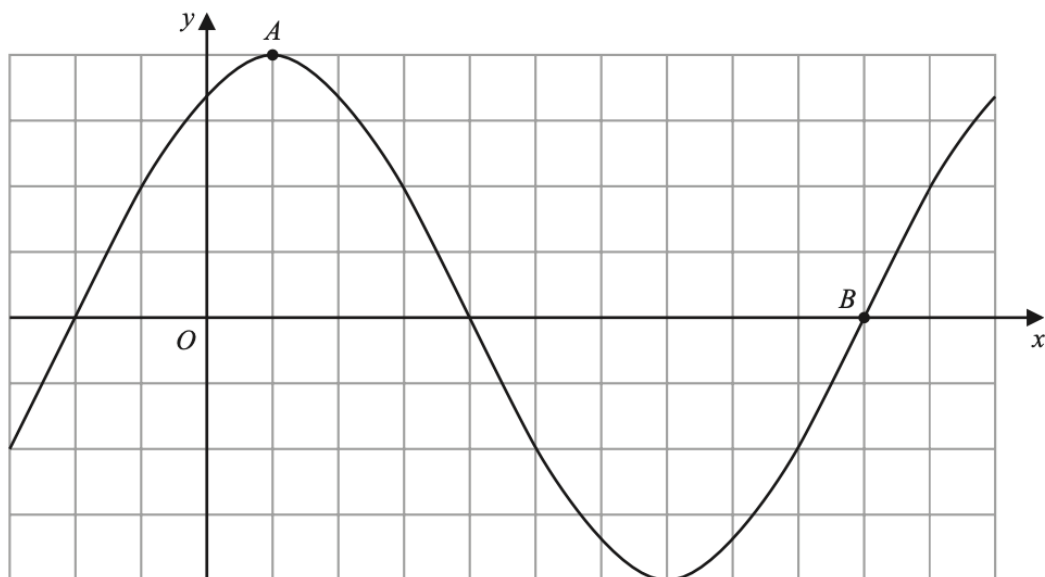
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25 The diagram shows a sketch of the graph of $y = 2\sin(x + 60)^\circ$



(i) Find the coordinates of the point A

(.....,)
(1)

(ii) Find the coordinates of the point B

(.....,)
(1)

(Total for Question 25 is 2 marks)

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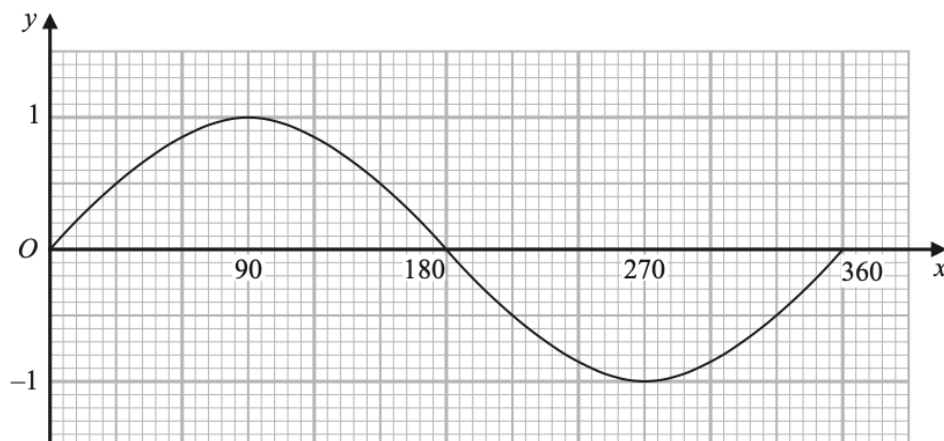
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18 Here is a graph of $y = \sin x^\circ$ for $0 \leq x \leq 360$



(a) Using this graph, find estimates of all **four** solutions of

$$\sin x^\circ = 0.6 \quad \text{for } 0 \leq x \leq 720$$

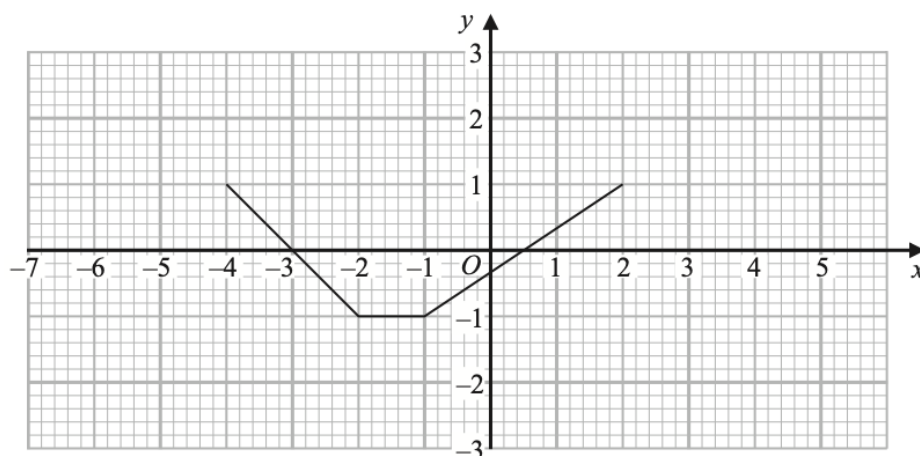
(2)

The graph of $y = \sin x^\circ$ is reflected in the x -axis.

(b) Write down an equation of the reflected graph.

(1)

Here is a graph of $y = f(x)$



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

(1)

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(Total for Question 18 is 4 marks)

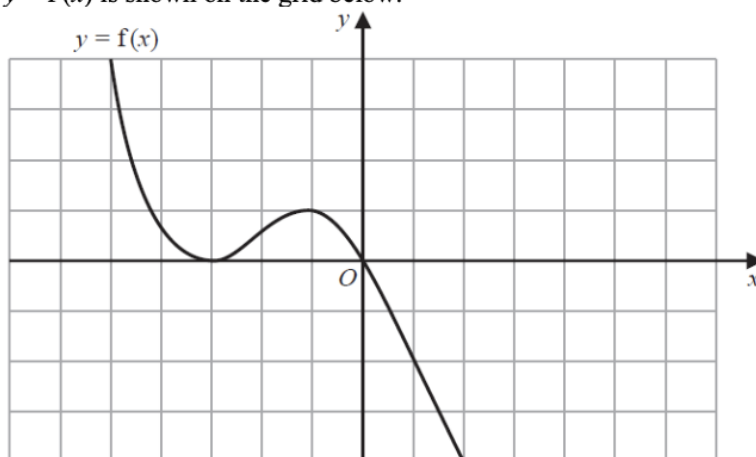
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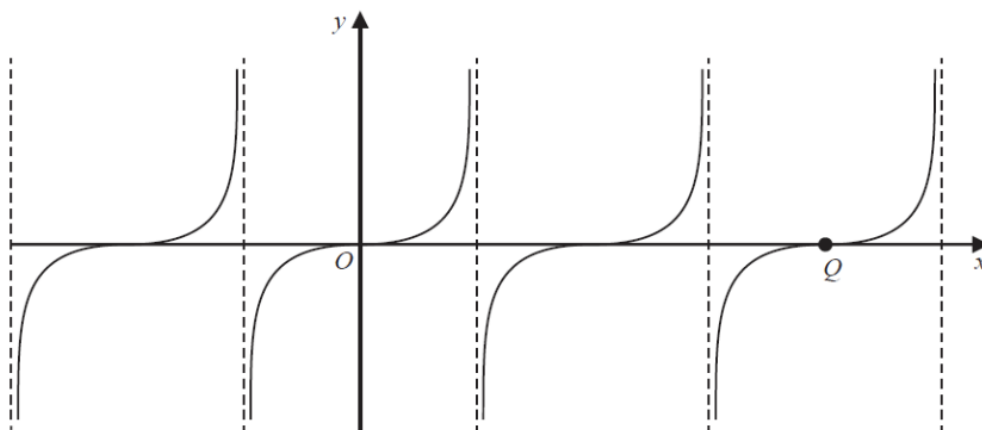
- 21 The graph of $y = f(x)$ is shown on the grid below.



- (a) On the grid above, sketch the graph of $y = f(-x)$

(1)

Here is a sketch of the graph of $y = \tan x^\circ$



The graph of $y = \tan x^\circ$ is translated to give the graph of $y = g(x)$

Following the translation the point Q , shown on the graph above, moves to point R .

Point R has coordinates $(90, -5)$

- (b) Find an expression for $g(x)$ in terms of x .

(2)

(Total for Question 21 is 3 marks)

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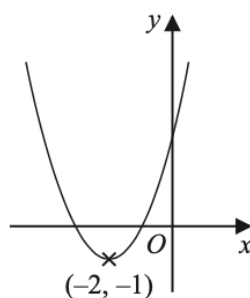
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18



The diagram shows the curve with equation $y = f(x)$

The coordinates of the minimum point of the curve are $(-2, -1)$

(a) Write down the coordinates of the minimum point of the curve with equation

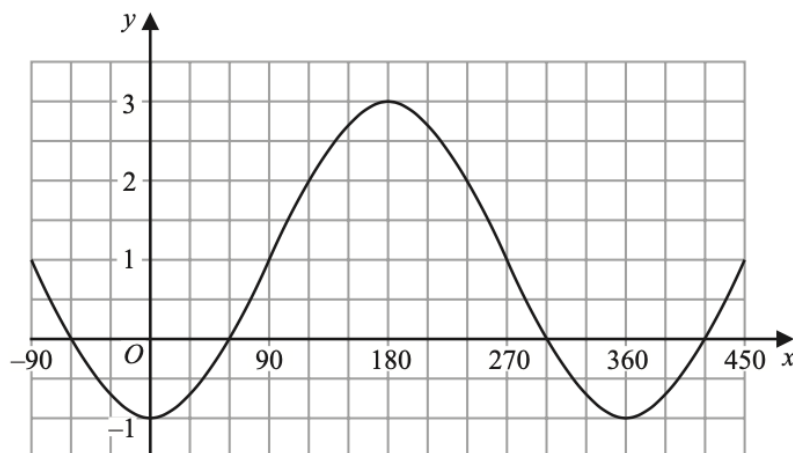
(i) $y = f(x - 5)$

(.....,)

(ii) $y = \frac{1}{2}f(x)$

(.....,)
(2)

The graph of $y = a \sin(x - b)^\circ + c$ for $-90 \leq x \leq 450$ is drawn on the grid below.



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

$a =$

$b =$

$c =$

(3)

SCAN ME!

(Total for Question 18 is 5 marks)

SCAN ME!



Mark Scheme

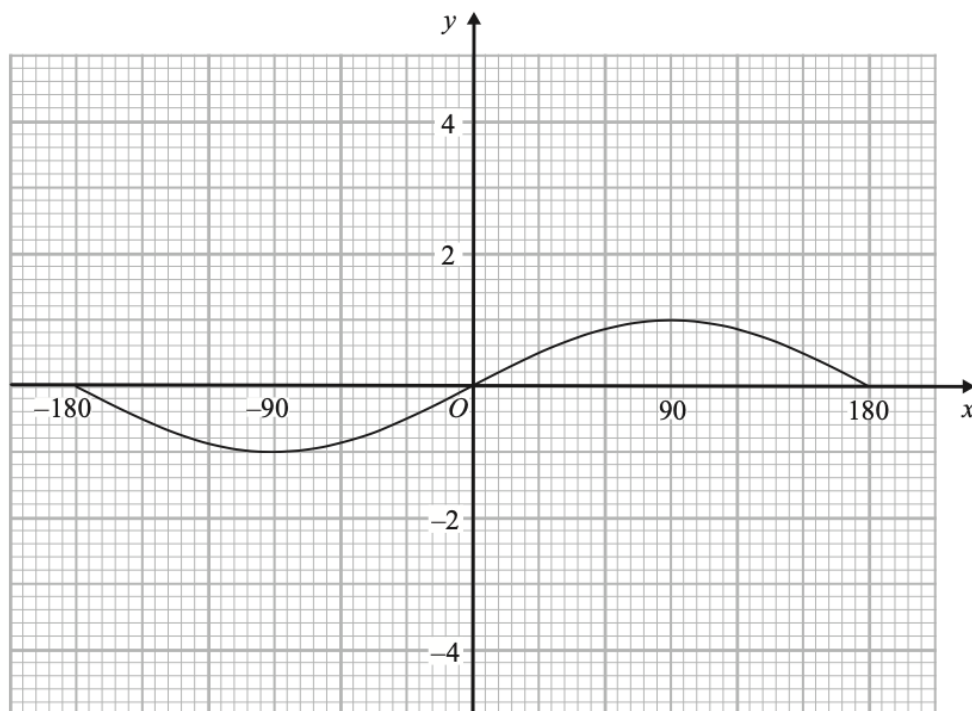
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18 Here is the graph of $y = \sin x^\circ$ for $-180 \leq x \leq 180$



On the grid, sketch the graph of $y = \sin x^\circ - 2$ for $-180 \leq x \leq 180$

(Total for Question 18 is 2 marks)

SCAN ME!



Mark Scheme

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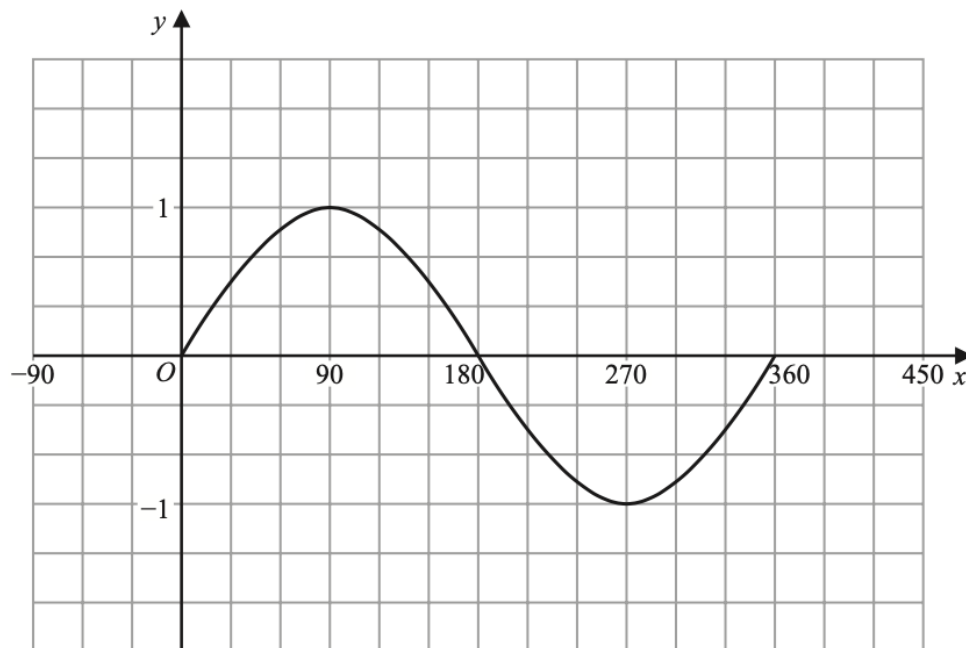
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18 Here is the graph of $y = \sin x^\circ$ for $0 \leq x \leq 360$



(a) On the grid above, sketch the graph of $y = \sin(x + 90)^\circ$ for $0 \leq x \leq 360$

(2)

In $0 \leq x \leq 360$, the graph of $y = \sin\left(\frac{x}{2}\right)^\circ + 3$ has a maximum at the point A .

(b) Write down the coordinates of A .

(.....,)

(2)

(Total for Question 18 is 4 marks)

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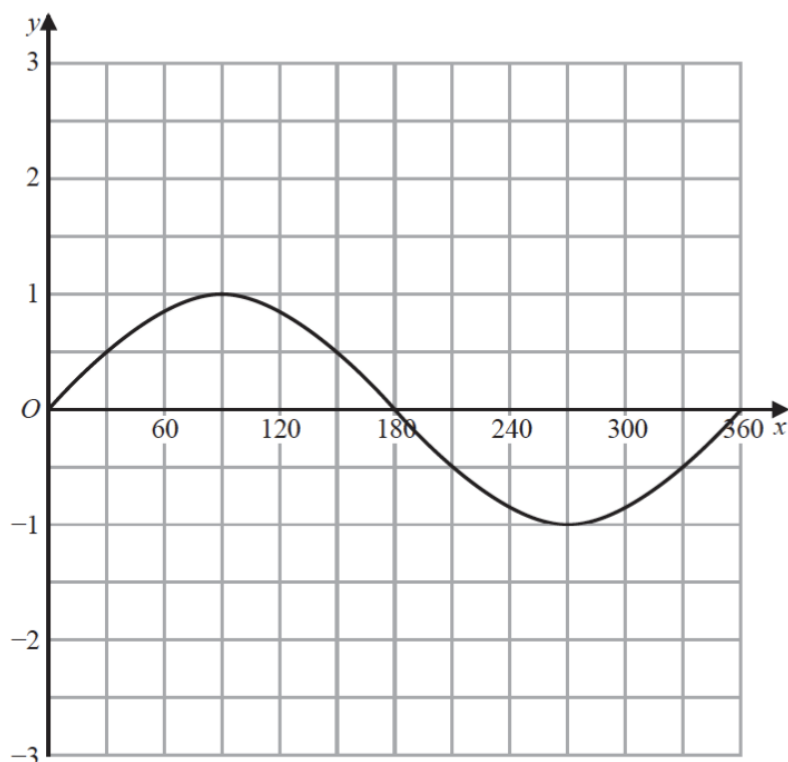
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22 The graph of $y = \sin x^\circ$ for $0 \leq x \leq 360$ is drawn on the grid.



(a) On the grid, draw the graph of $y = 2 \sin (x + 30)^\circ$ for $0 \leq x \leq 360$

(2)

(b) (i) Write $x^2 - 6x + 10$ in the form $(x - a)^2 + b$ where a and b are integers.

.....
(2)

(ii) Hence, describe fully the single transformation that maps the curve with equation $y = x^2$ onto the curve with equation $y = x^2 - 6x + 10$

.....
.....
(2)

(Total for Question 22 is 6 marks)

SCAN ME!



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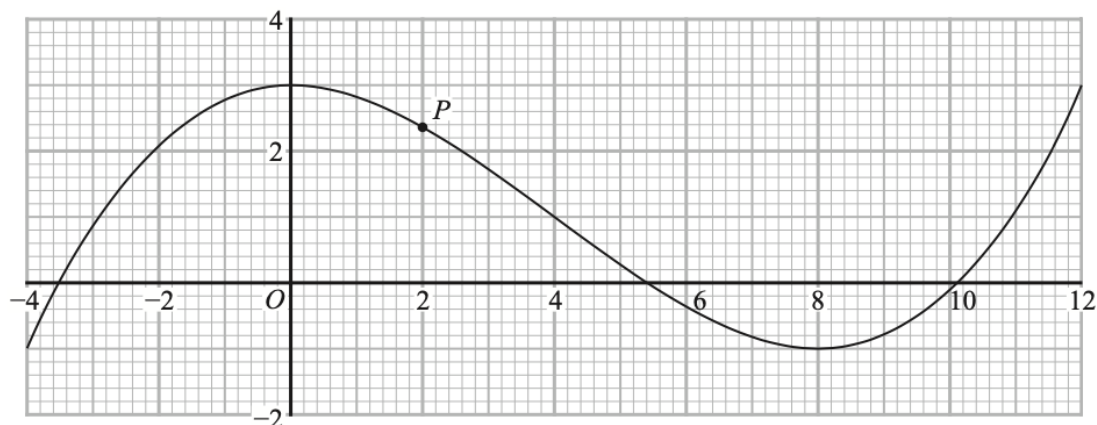
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18 The diagram shows the graph of $y = f(x)$ for $-4 \leq x \leq 12$



The point P on the curve has x coordinate 2

(a) (i) Use the graph to find an estimate for the gradient of the curve at P .

.....
(3)

(ii) Hence find an equation of the tangent to the curve at P .

Give your answer in the form $y = mx + c$

.....
(2)

The equation $f(x) = k$ has exactly two different solutions for $-4 \leq x \leq 12$

(b) Use the graph to find the two possible values of k .

.....,
(2)

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(Total for Question 18 is 7 marks)

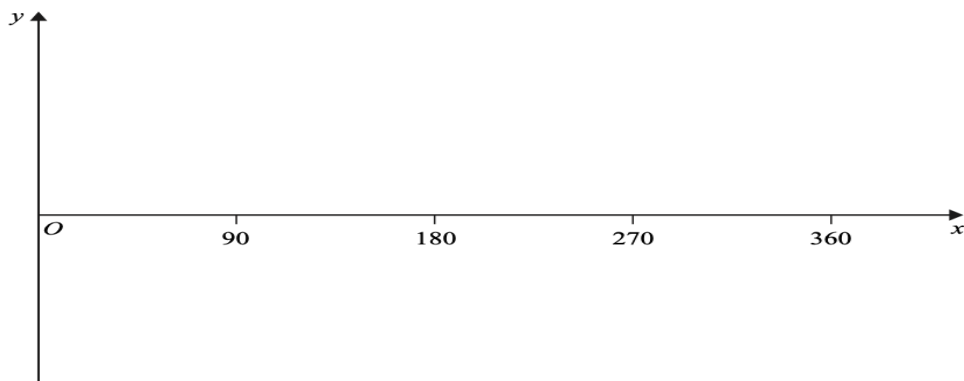
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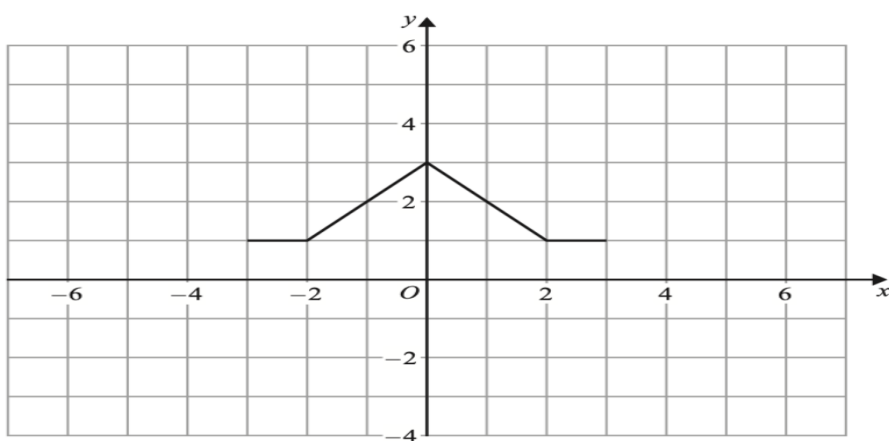
19 (a) Sketch the graph of $y = \cos x^\circ$ for $0 \leq x \leq 360$



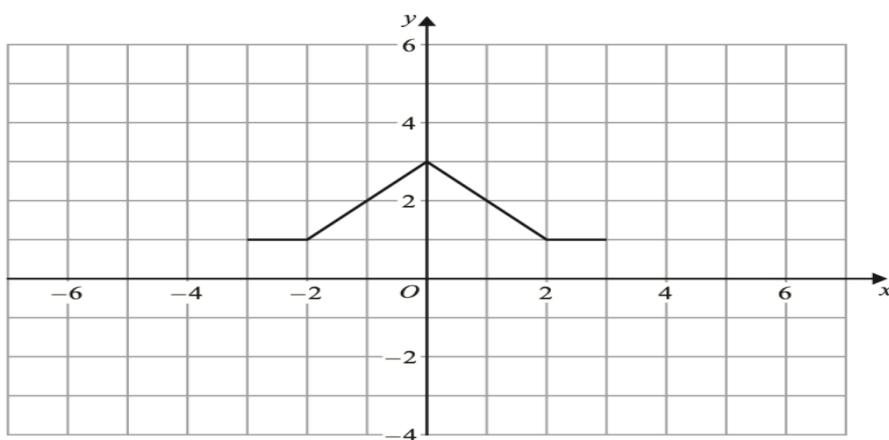
(2)

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

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



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



(2)

(Total for Question 19 is 4 marks)

SCAN ME!



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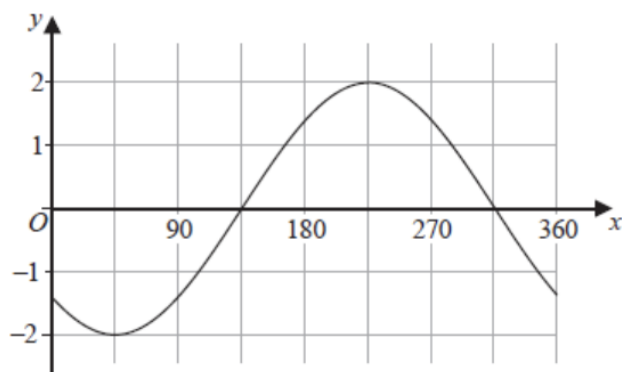
SCAN ME!



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20 Here is a sketch of the curve $y = a \cos(x + b)^\circ$ for $0 \leq x \leq 360$



Given that $0 < b < 180$

find the value of a and the value of b

$a = \dots\dots\dots$

$b = \dots\dots\dots$

(Total for Question 20 is 2 marks)

SCAN ME!



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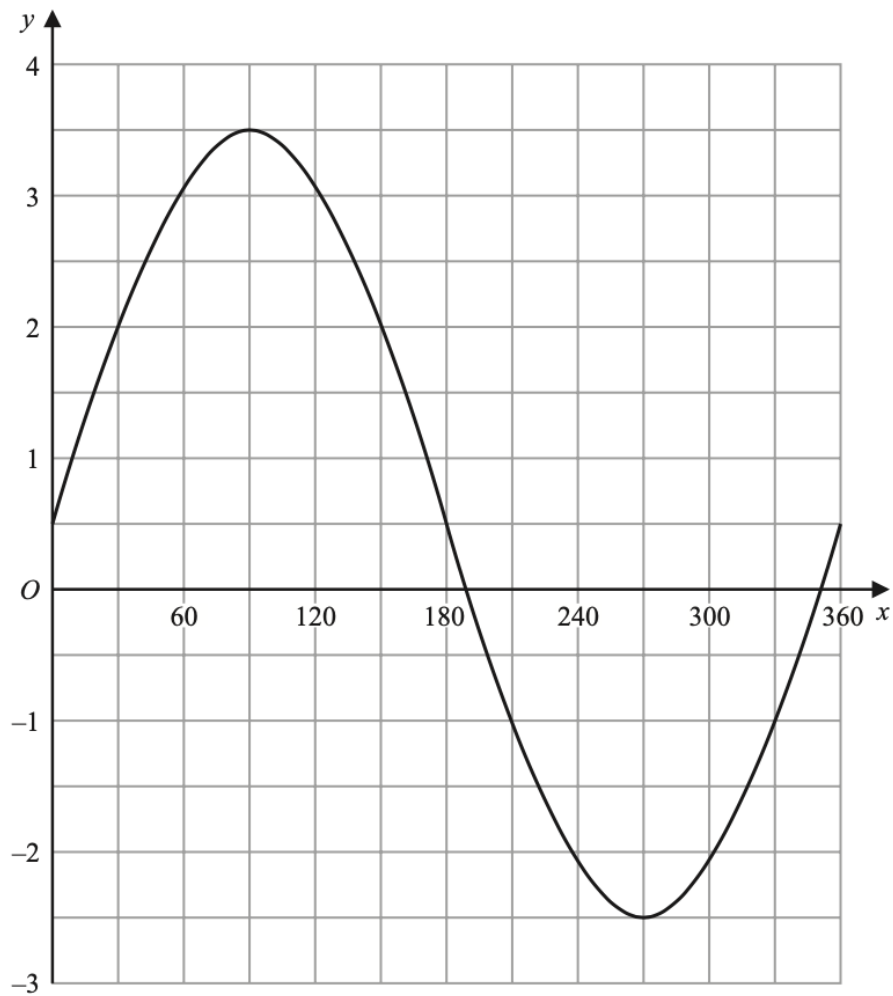
SCAN ME!



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24 The graph of $y = a \sin x^\circ + b$ is drawn on the grid.



Find the value of a and the value of b

$a =$

$b =$

(Total for Question 24 is 2 marks)

SCAN ME!



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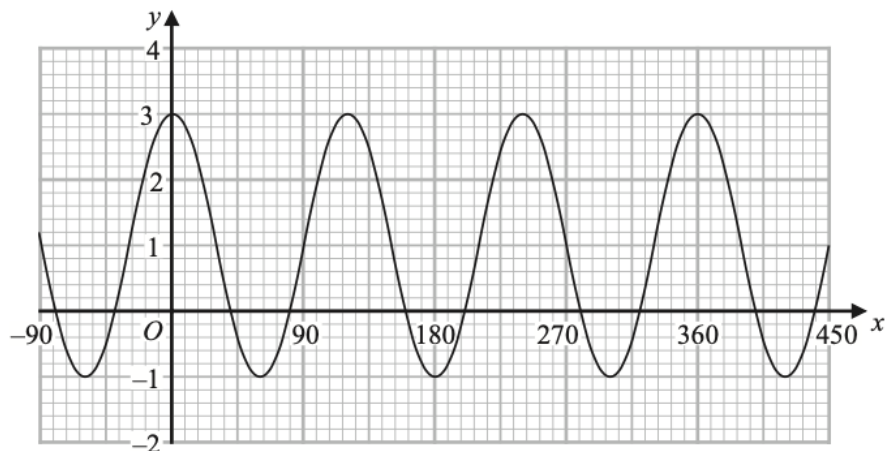
SCAN ME!



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26 Here is a sketch of the curve with equation $y = a \cos bx^\circ + c$ where $-90 \leq x \leq 450$



Find the value of a , the value of b and the value of c

$a =$

$b =$

$c =$

(Total for Question 26 is 3 marks)

SCAN ME!



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SCAN ME!



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24 The curve with equation $f(x) = 5x^2 + 9x + 2$ is transformed to the curve with equation

$$g(x) = 5(x+4)^2 + 9(x+4) + 8 \text{ by the translation } \begin{pmatrix} a \\ b \end{pmatrix}$$

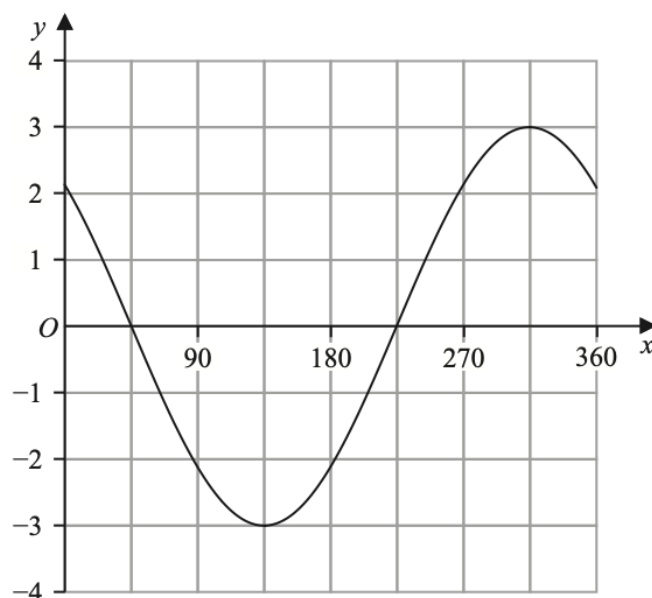
(a) Write down the value of a and the value of b

$a = \dots\dots\dots$

$b = \dots\dots\dots$

(2)

The graph of $y = p \cos(x+q)^\circ$ for $0 \leq x \leq 360$ is drawn on the grid below.



Given that $p > 0$ and $0 < q < 360$

(b) find the value of p and the value of q

$p = \dots\dots\dots$

$q = \dots\dots\dots$

(2)

(Total for Question 24 is 4 marks)

SCAN ME!



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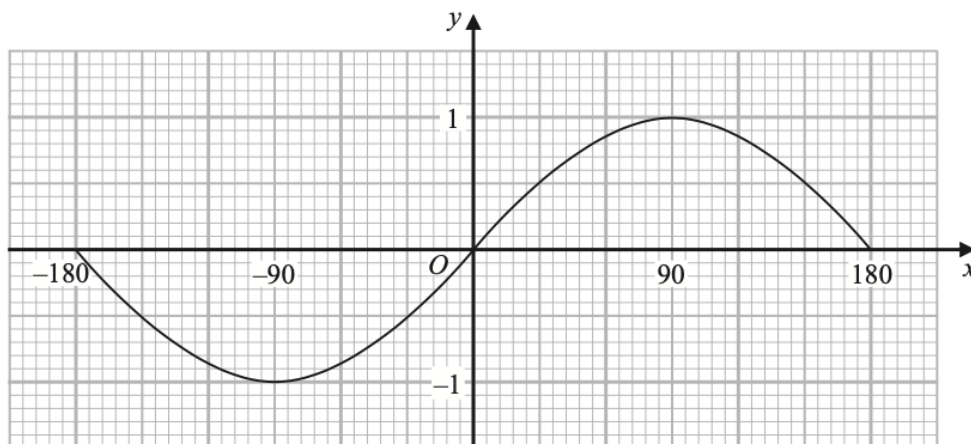
SCAN ME!



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19 Here is the graph of $y = \sin x^\circ$ for $-180 \leq x \leq 180$



(a) Use the graph to find estimates for the solutions of

$$\sin x^\circ = 0.3 \quad \text{for } -180 \leq x \leq 180$$

.....
(2)

(b) Write down a value of x such that

$$\sin(x + 20)^\circ = 0 \quad \text{for } -180 \leq x \leq 180$$

$x =$
(1)

(Total for Question 19 is 3 marks)

SCAN ME!



Mark Scheme

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SCAN ME!



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21 A curve has equation $y = f(x)$

There is only one maximum point on the curve.

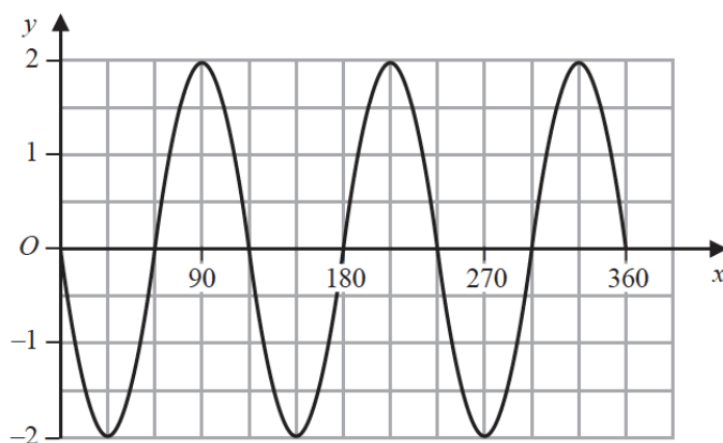
The coordinates of this maximum point are (4, 3)

(a) Write down the coordinates of the maximum point on the curve with equation

(i) $y = f(x - 5)$

(.....,) (1)

(ii) $y = 3f(x)$

(.....,)
(2)Here is the graph of $y = a \sin(bx)^\circ$ for $0 \leq x \leq 360$ (b) Find the value of a and the value of b . $a = \dots\dots\dots$ $b = \dots\dots\dots$

(2)

(Total for Question 21 is 4 marks)

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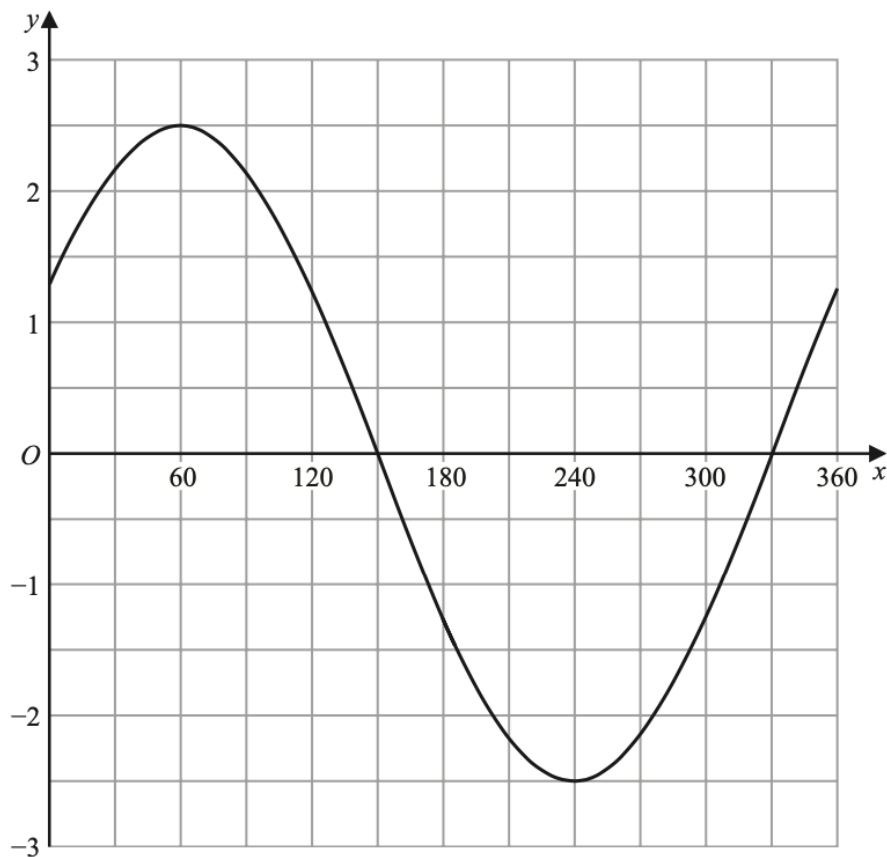
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22 The graph of $y = a \cos(x + b)^\circ$ for $0 \leq x \leq 360$ is drawn on the grid.



(a) Find the value of a and the value of b .

$a = \dots\dots\dots$

$b = \dots\dots\dots$

(2)

Another curve C has equation $y = f(x)$

The coordinates of the minimum point of C are $(4, 5)$

(b) Write down the coordinates of the minimum point of the curve with equation

(i) $y = f(2x)$

(.....,)

(ii) $y = f(x) - 7$

(.....,)

(2)

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(Total for Question 22 is 4 marks)

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- 21** The curve **C** has equation $y = f(x)$ where $f(x) = 9 - 3(x + 2)^2$
 The point **A** is the maximum point on **C**.

(a) Write down the coordinates of **A**.

(.....,)
 (1)

The curve **C** is transformed to the curve **S** by a translation of $\begin{pmatrix} 4 \\ 0 \end{pmatrix}$
 (b) Find an equation for the curve **S**.

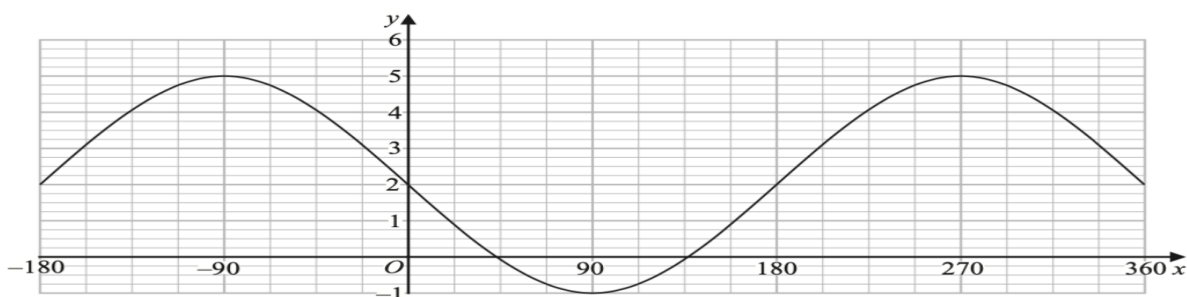
(1)

The curve **C** is transformed to the curve **T**.
 The curve **T** has equation $y = 3(x + 2)^2 - 9$

(c) Describe fully the transformation that maps curve **C** onto curve **T**.

(1)

The graph of $y = a \cos(x - b)^\circ + c$ for $-180 \leq x \leq 360$ is drawn on the grid below.



(d) Find the value of a , the value of b and the value of c .

$a =$

$b =$

$c =$
 (3)

(Total for Question 21 is 6 marks)

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