Name: SOLUTIONS

GCSE (1 - 9)

Buy me a coffee

Trigonometric and Exponential Graphs

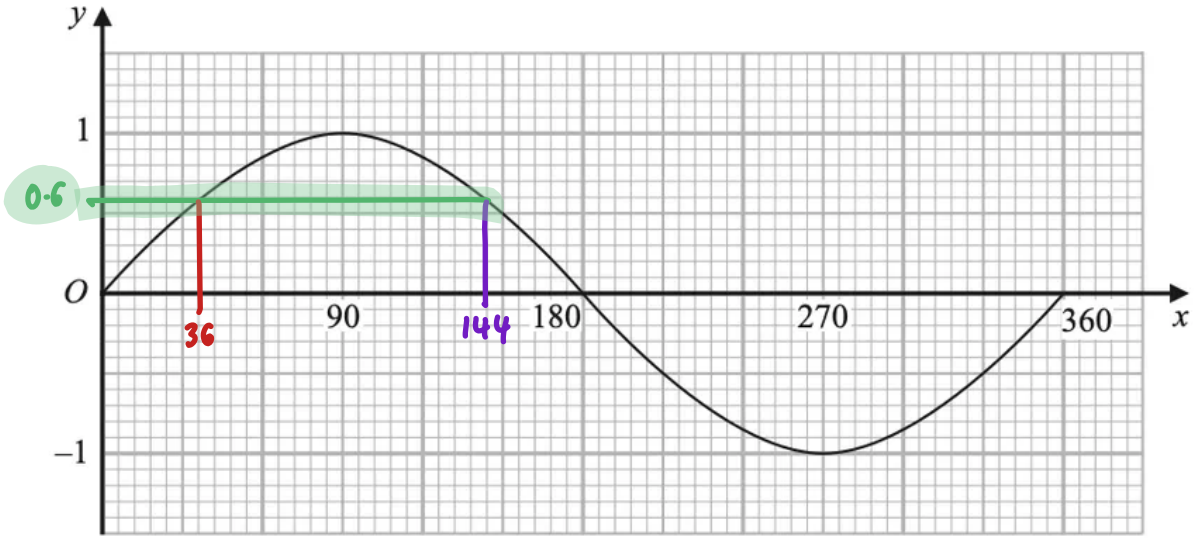
Solutions by
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These questions are compiled from *released* Pearson Edexcel GCSE maths exam papers
They contain exam questions from up until the ***November 2021*** exam series
More recent exam papers do exist but are withheld for mock exams
As new exam papers are released these worksheets will gradually be updated
The ***most current*** version of these worksheets will always be available at: kennethstafford.co.uk
These worksheets were made using examq.co.uk

Question	Where the question appeared
1	Edexcel, GCSE, Autumn 2021, Paper 2H, Q18
2	Edexcel, GCSE, Summer 2019, Paper 3H, Q17
3	Edexcel, GCSE, Autumn 2018, Paper 2H, Q14
4	Edexcel, GCSE, Autumn 2018, Paper 3H, Q11
5	Edexcel, GCSE, Summer 2018, Paper 1H, Q18
6	Edexcel, GCSE, Autumn 2017, Paper 1H, Q20
7	Edexcel, GCSE, Summer 2017, Paper 2H, Q14
8	Edexcel, GCSE, Summer 2017, Paper 3H, Q20

1

Here is a graph of $y = \sin x°$ for $0 \leqslant x \leqslant 360$



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

$\sin x° = 0.6$ for $0 \leqslant x \leqslant 720$

36 144

(2)

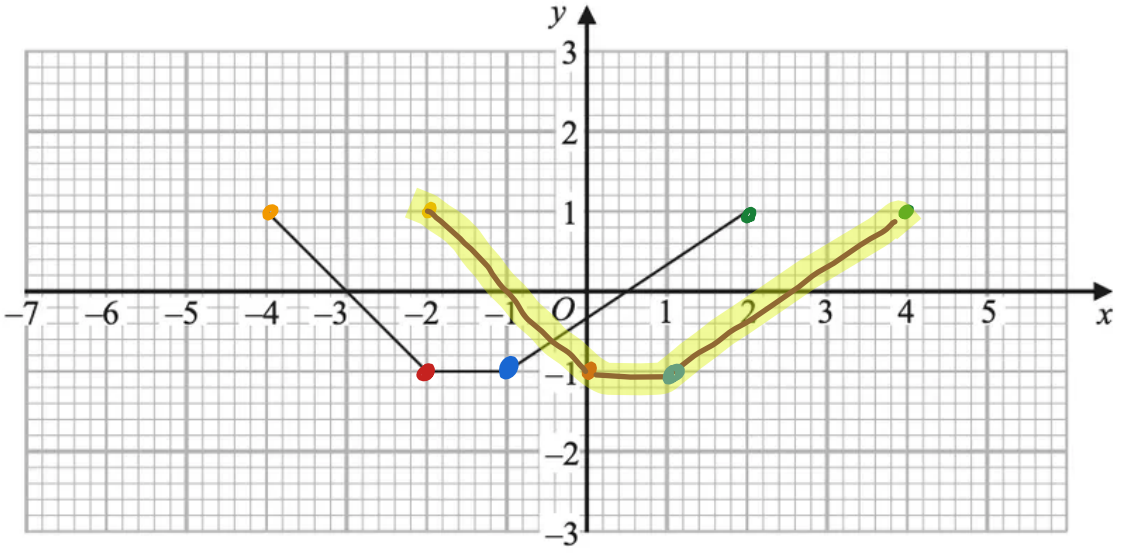
The graph of $y = \sin x°$ is reflected in the x-axis.

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

$y = -\sin x$

(1)

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



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

(1)

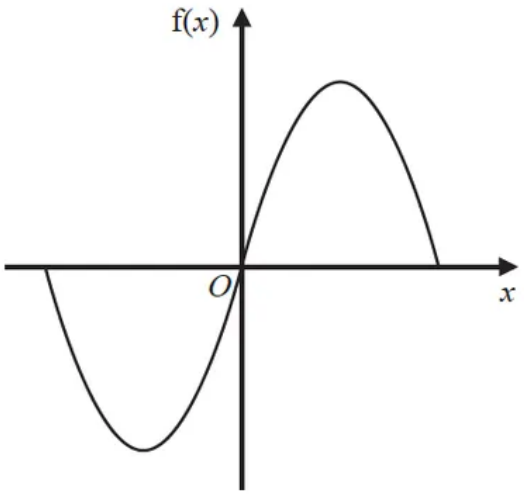
(Total for Question 18 is 4 marks)

[Edexcel, GCSE, Autumn 2021, Paper 2H, Q18]

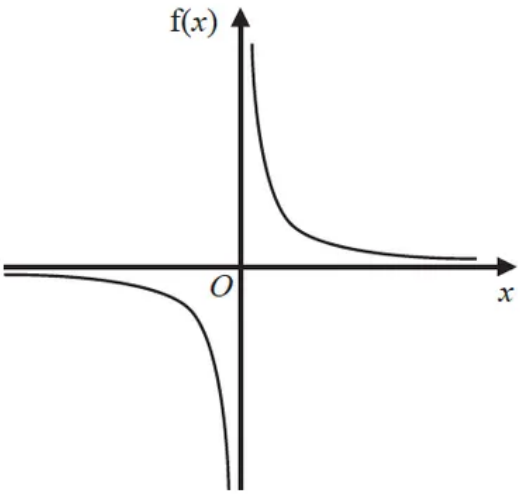
2

Here are four graphs.

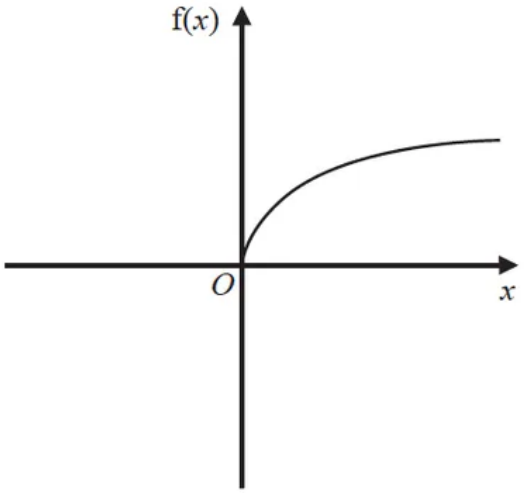
Graph A



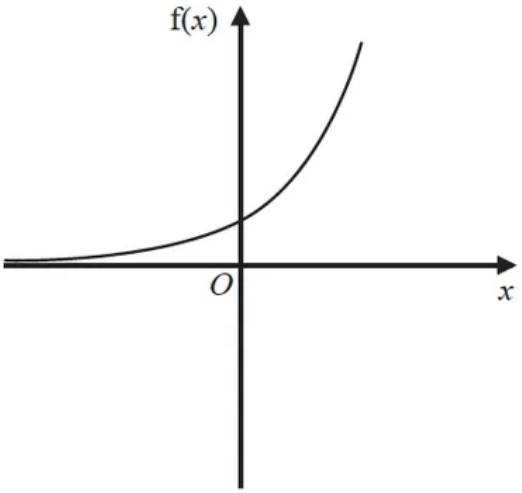
Graph B



Graph C



Graph D



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	B
f(x) is a trigonometrical function	A
f(x) is an exponential function	D
f(x) is directly proportional to $\sqrt{x}$	C

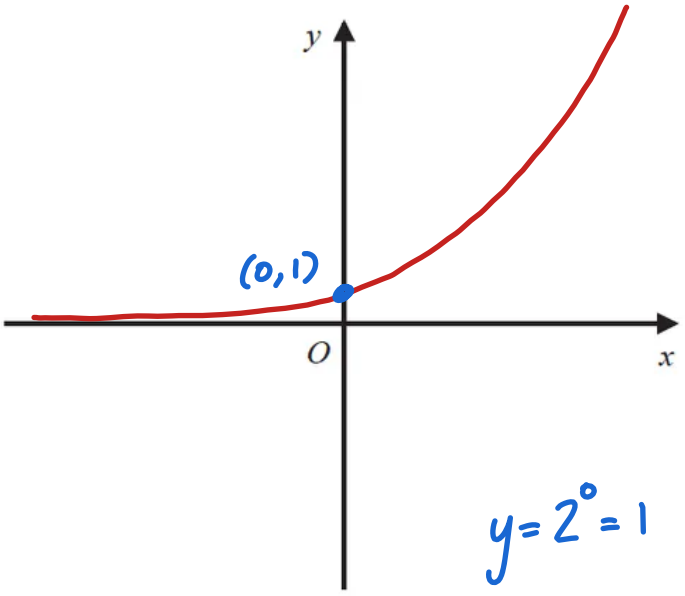
(Total for Question 17 is 2 marks)

[Edexcel, GCSE, Summer 2019, Paper 3H, Q17]

3

On the grid, sketch the curve with equation $y = 2^x$

Give the coordinates of any points of intersection with the axes.



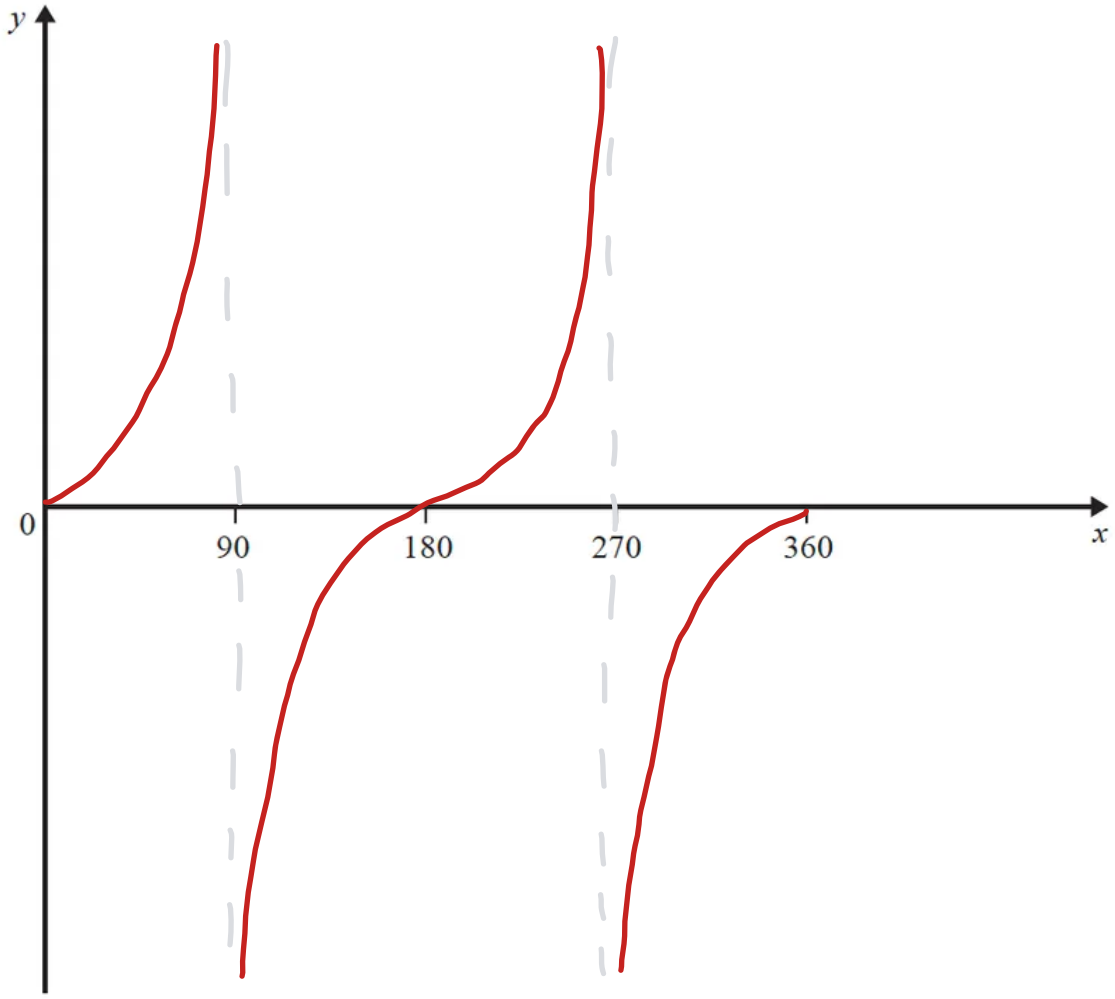
$y = 2^0 = 1$

(Total for Question 14 is 2 marks)

[Edexcel, GCSE, Autumn 2018, Paper 2H, Q14]

4

Sketch the graph of $y = \tan x°$ for $0 \leqslant x \leqslant 360$

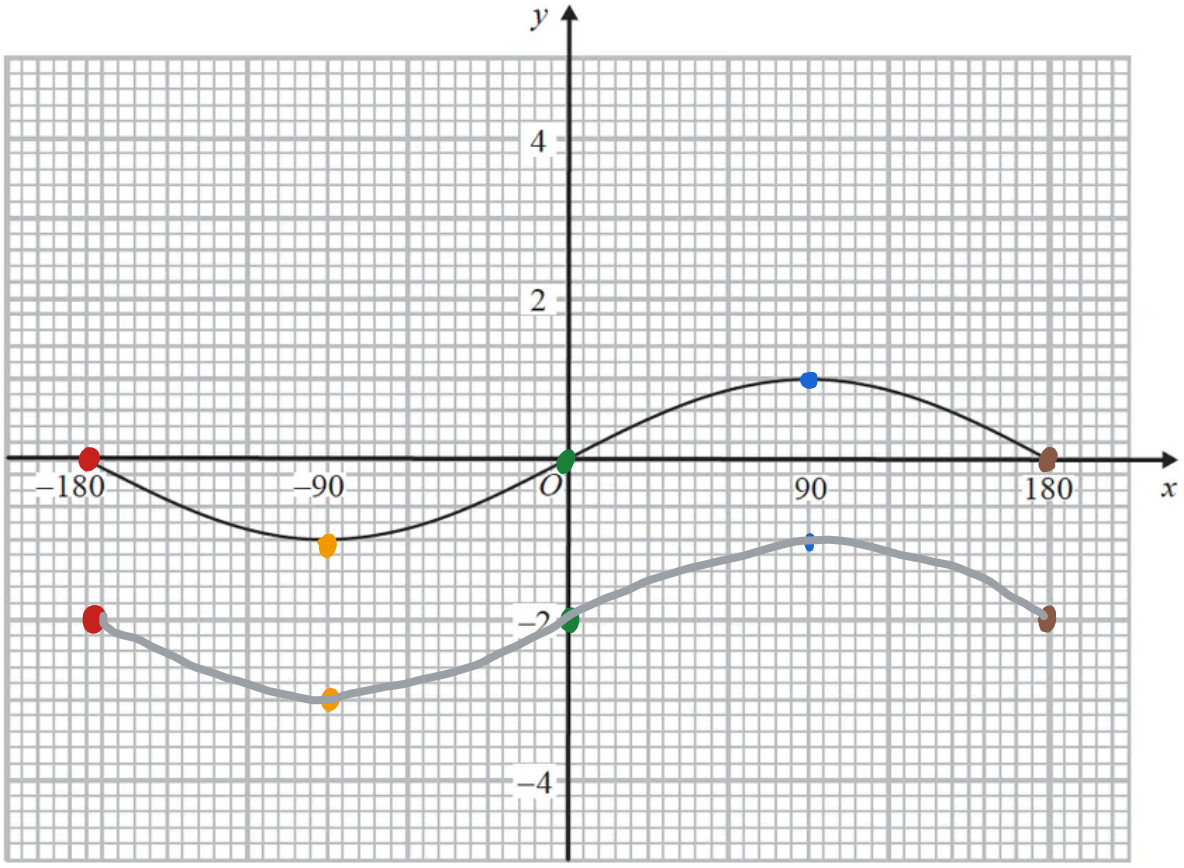


(Total for Question 11 is 2 marks)

[Edexcel, GCSE, Autumn 2018, Paper 3H, Q11]

5

Here is the graph of $y = \sin x°$ for $-180 \leqslant x \leqslant 180$



On the grid, sketch the graph of $y = \sin x° - 2$ for $-180 \leqslant x \leqslant 180$

(Total for Question 18 is 2 marks)

[Edexcel, GCSE, Summer 2018, Paper 1H, Q18]

6

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

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 $x = 45$

$y = a\cos x° + b$

$3 = a\cos(0) + b$

$3 = a + b$

$y = a\cos x + b$

$1 = a\cos(0) + b$

$1 = b$

$a = 2$

$y = 2\cos(45) + 1$

$y = 2\left(\frac{\sqrt{2}}{2}\right) + 1$

$1 + \sqrt{2}$

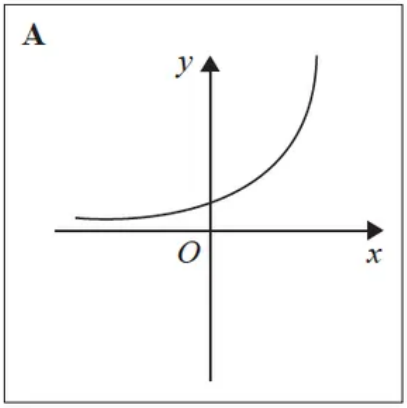
(Total for Question 20 is 4 marks)

[Edexcel, GCSE, Autumn 2017, Paper 1H, Q20]

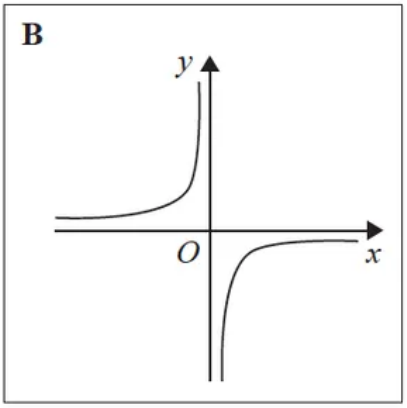
7

Here are some graphs.

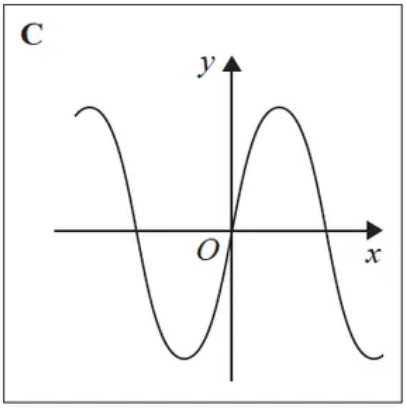
A



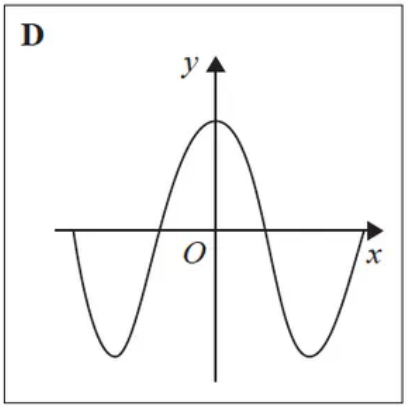
B



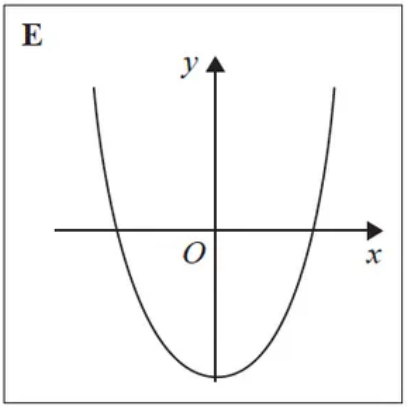
C



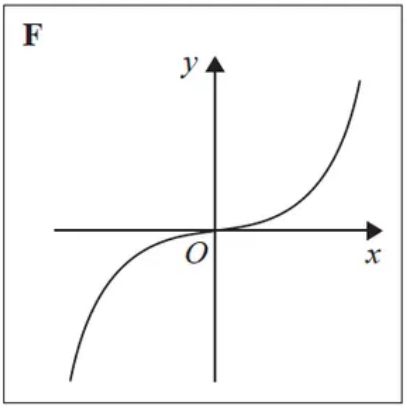
D



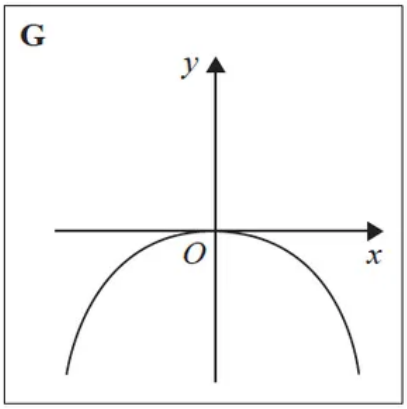
E



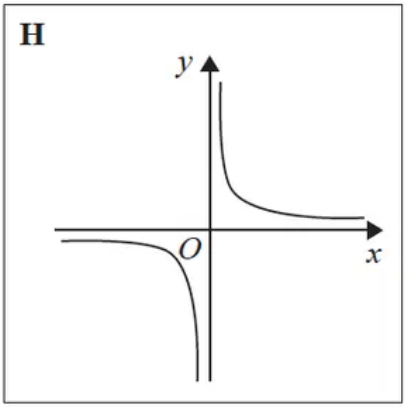
F



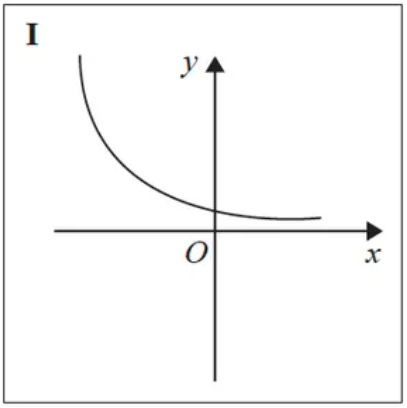
G



H



I



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

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

(Total for Question 14 is 3 marks)

[Edexcel, GCSE, Summer 2017, Paper 2H, Q14]

8

The equation of a curve is $y = a^x$
A is the point where the curve intersects the y-axis. → $x=0$

(a) State the coordinates of A.

$y = a^0$

$y = 1$

(0 , 1)

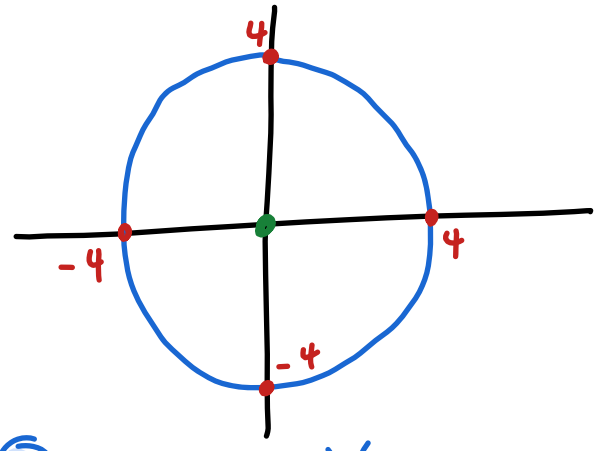
(1)

The equation of circle **C** is $x^2 + y^2 = 16$

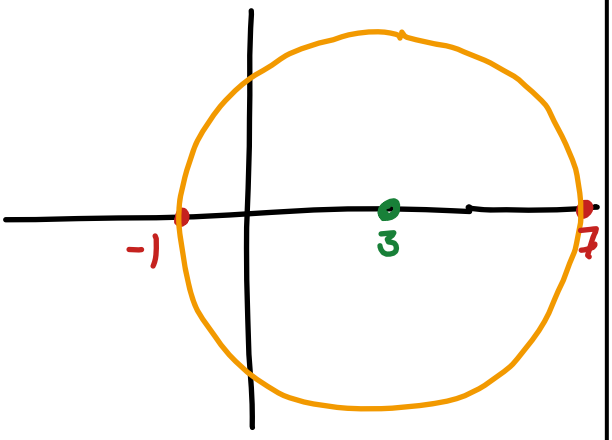
The circle **C** is translated by the vector $\begin{pmatrix} 3 \\ 0 \end{pmatrix}$ to give circle **B**.

(b) Draw a sketch of circle **B**.

Label with coordinates
the centre of circle **B**
and any points of intersection with the x-axis.



C $x^2+y^2=16$



B

(3)

(Total for Question 20 is 4 marks)

[Edexcel, GCSE, Summer 2017, Paper 3H, Q20]