MME
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GCSE MATHEMATICS

AQA | Edexcel | OCR | WJEC

(Level 5 - 7)

Sin, Cos and Tan Graphs

Please write clearly in block capitals

Forename:
Surname:

Materials

For this paper you must have:
- mathematical instruments

You ***can*** use a calculator.

Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer all questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information

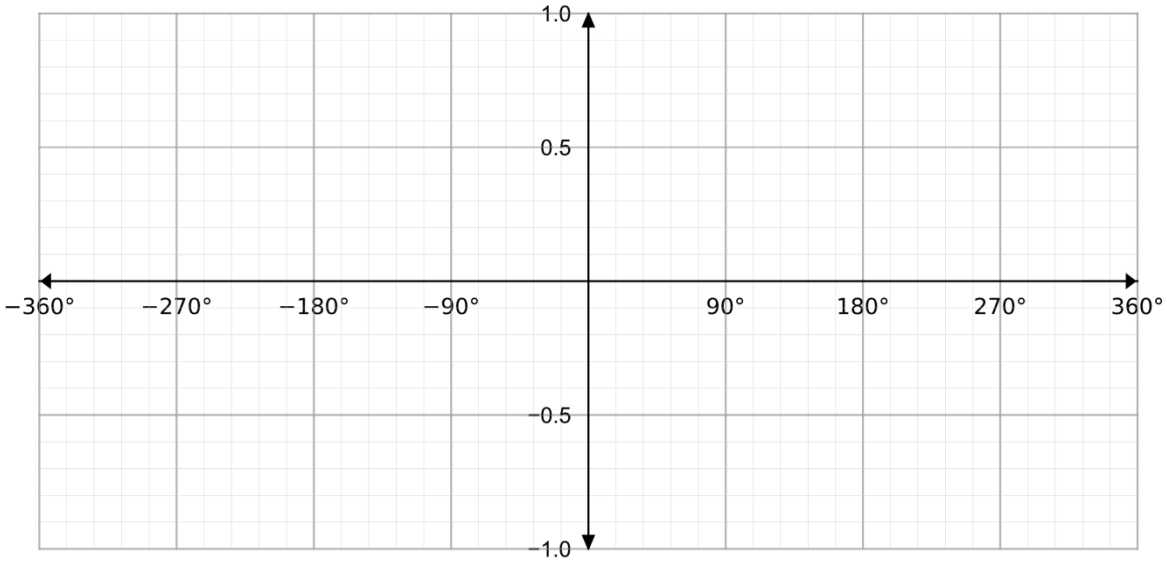
- The marks for questions are shown in brackets.
- You may ask for graph paper, tracing paper and more answer paper. These must be tagged securely to this answer book.

Advice

- In all calculations, show clearly how you work out your answer.

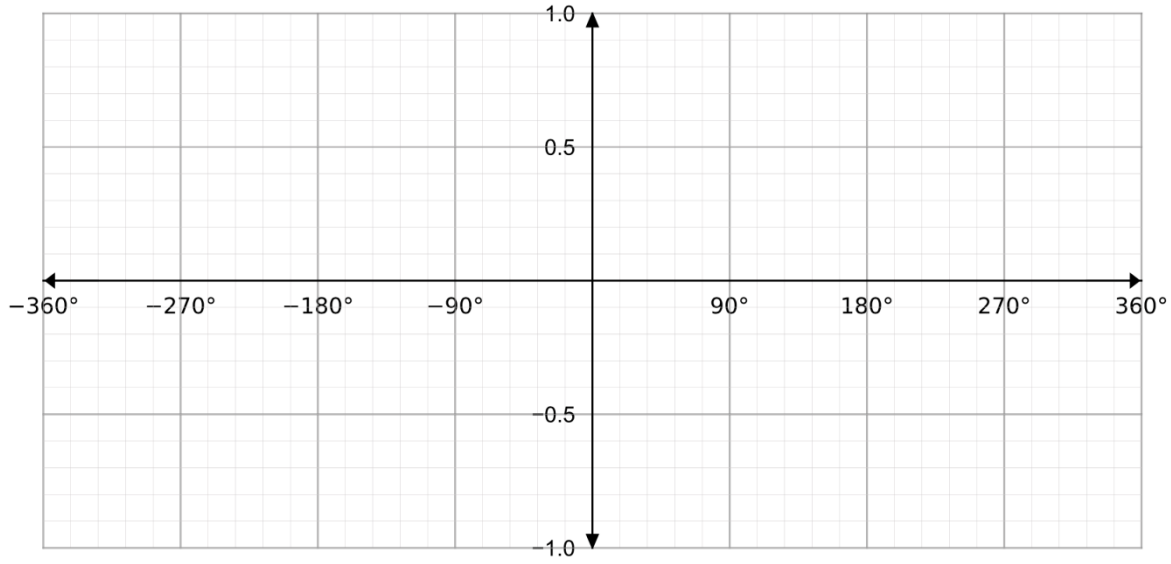
1 Sketch the graph of $y = \sin(x)$ on the axes below for the region $-360 \leq x \leq 360$. *(Level 5)*

[2 marks]



2 Sketch the graph of $y = \cos(x)$ on the axes below for the region $-360 \leq x \leq 360$. *(Level 5)*

[2 marks]

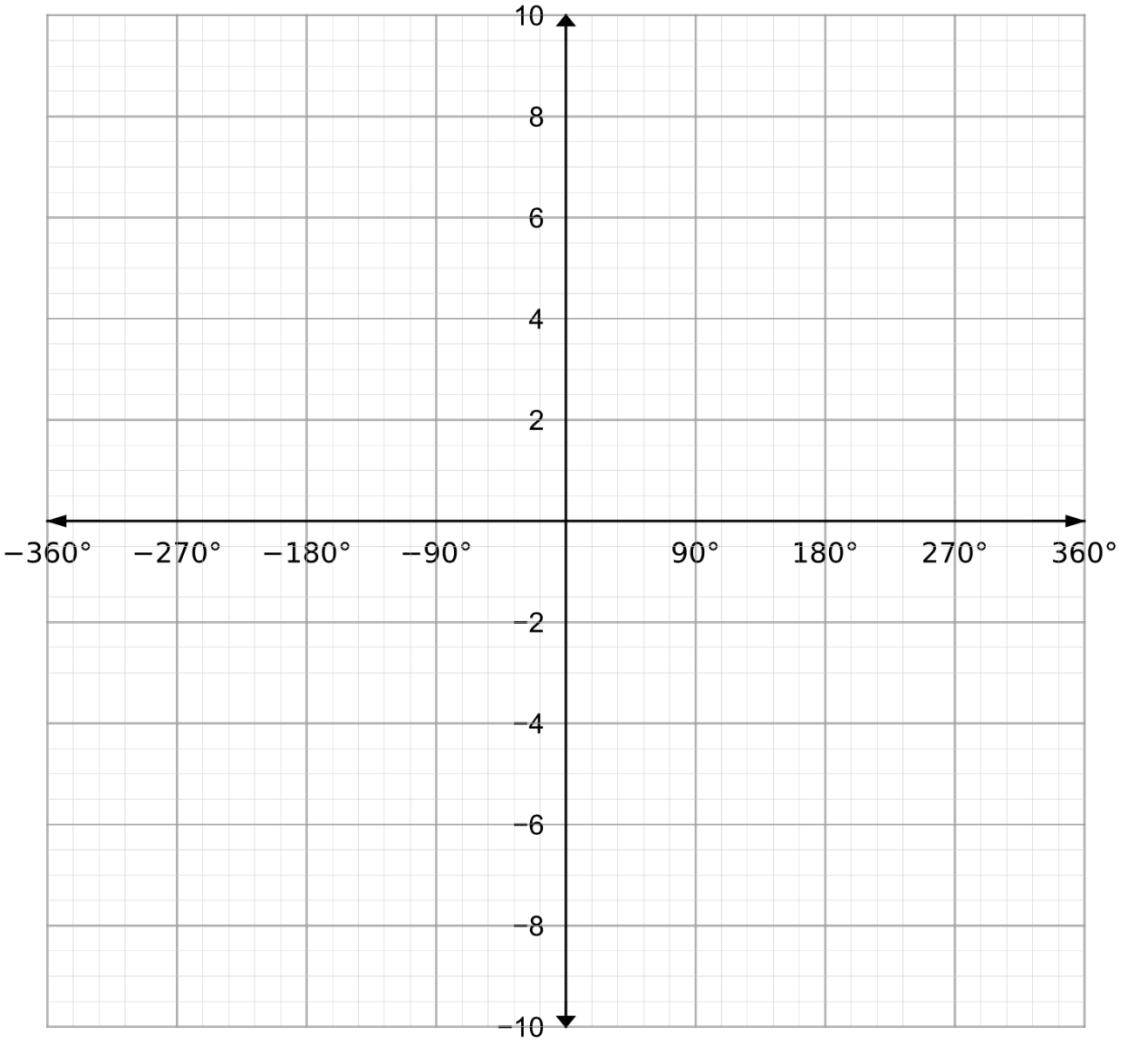


Turn over for next question

4

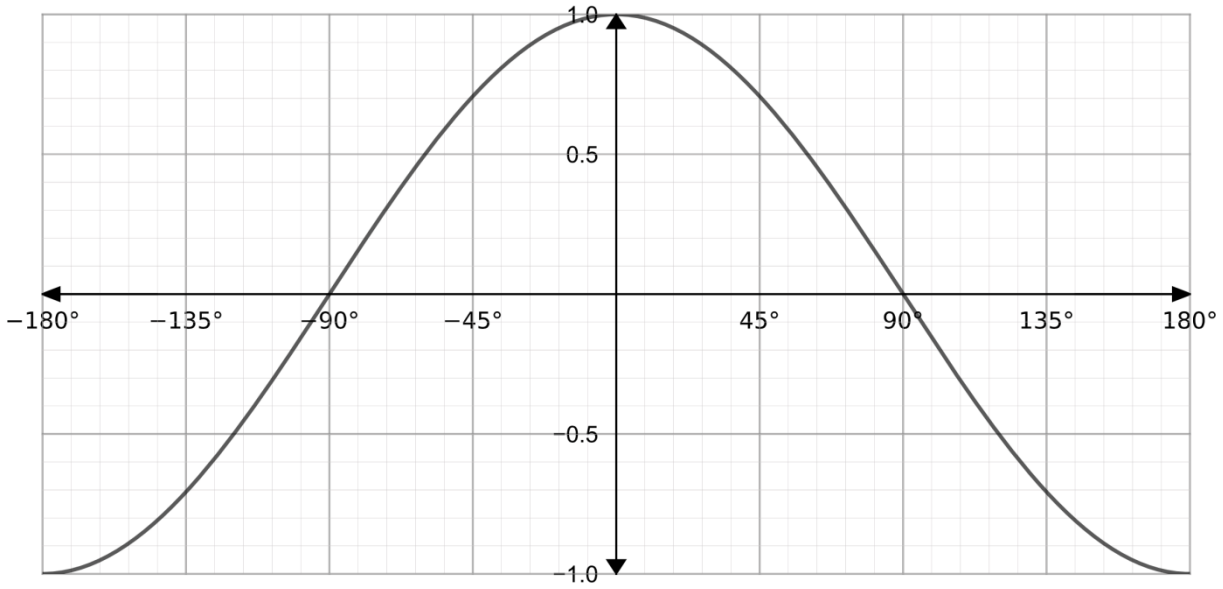
3 Sketch the graph of $y = \tan(x)$ on the axes below for the domain $-360 \leq x \leq 360$ *(Level 5)*

[2 marks]



2

4 The graph of $y = \cos(x)$ for $-180 \leq x \leq 180$ has been drawn on the axes below. *(Level 6)*



Using the graph, find the solutions to the following equations.

4(a) $\cos(x) = 0$

[1 mark]

Answer _____

4(b) $\cos(x) = \frac{1}{2}$

[1 mark]

Answer _____

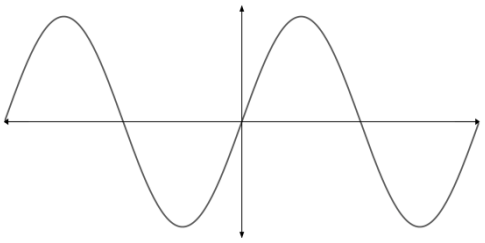
4(c) Explain why there are no solutions to the equation $\cos(x) = 2$.

[1 mark]

3

5 For the following graphs, circle the correct function corresponding to the graph shown. *(Level 6)*

5(a)

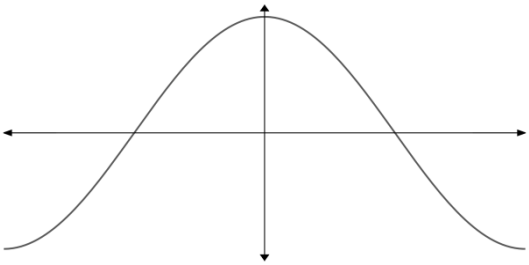


[1 mark]

$cosine$ $tangent$

$Sine$ $none\ of\ the\ above$

5(b)

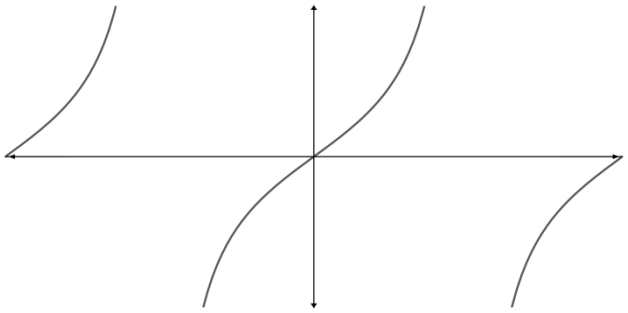


[1 mark]

$cosine$ $tangent$

$Sine$ $none\ of\ the\ above$

5(c)



[1 mark]

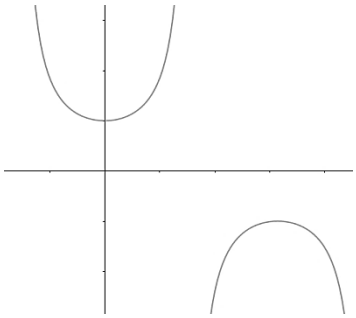
$cosine$ $tangent$

$Sine$ $none\ of\ the\ above$

Turn over for next question

3

5(d)

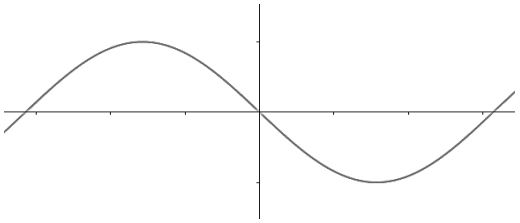


[1 mark]

cosine *tangent*

Sine *none of the above*

5(e)

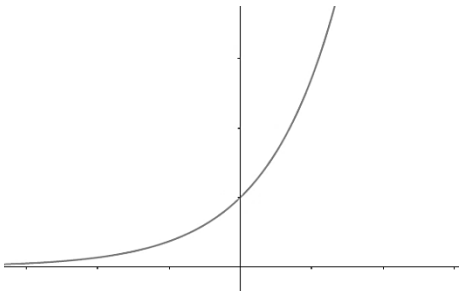


[1 mark]

cosine *tangent*

Sine *none of the above*

5(f)



[1 mark]

cosine *tangent*

Sine *none of the above*

3

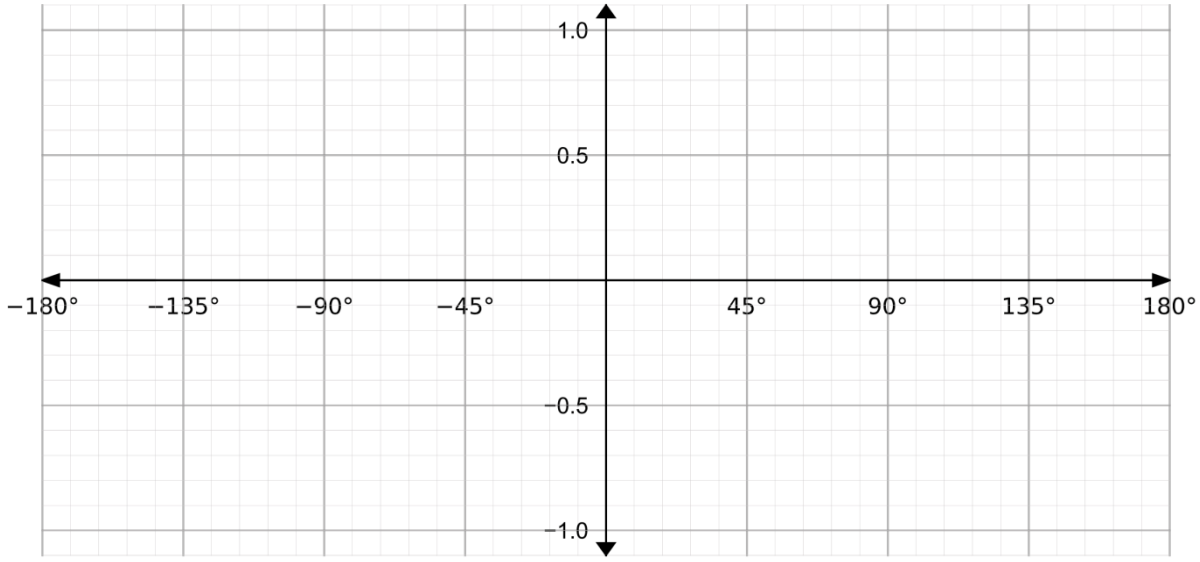
6 Sketch the graphs of $y = \sin(x)$ and $y = 2\sin(x)$ for $-180 \leq x \leq 180$ on the axes below, making sure to label any points of intersection with the axes. *(Level 7)*

[3 marks]

3

7 By use of a sketch, find any solutions to the equation $\sin(x) = \cos(x)$ for $-180 \leq x \leq 180$. *(Level 7)*

[3 marks]



3

END