

GCSE Mathematics

H

Trigonometric Graphs

Higher Tier | Grades 7-8

Total Marks	Time	Questions
44	44 min	20

Instructions:

- Do not use a calculator when you see: 
- Answer all questions in the spaces provided.
- Show all your working - marks are awarded for method as well as final answers.
- Cross through any work you do not want to be marked.
- Check your answers if you have time at the end.

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Edexcel-style questions**Q1** 

Grade 7

Edexcel style

Write down the period of the graph of $y = \sin x^\circ$.

Answer _____

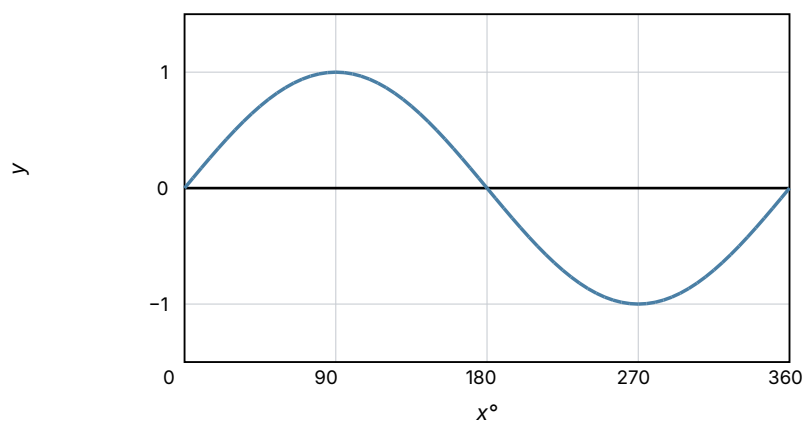
teachably

[1 mark]**Q2** 

Grade 7

Edexcel style

The diagram shows the graph of $y = \sin x^\circ$ for $0 \leq x \leq 360^\circ$. Write down the coordinates of the maximum point.

*Diagram NOT accurately drawn*

Answer _____

teachably

[2 marks]

Q3

Grade 8

Edexcel style

The diagram shows a transformation of the graph $y = \sin x^\circ$. Write down the equation of the graph shown.

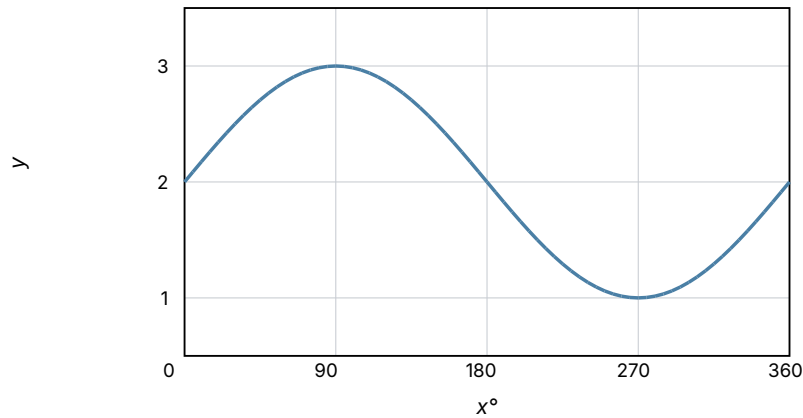


Diagram NOT accurately drawn

Answer _____

teachably

[2 marks]**Q4**

Grade 8

Edexcel style

The graph of $y = \sin x^\circ$ is transformed to $y = \sin x^\circ + 5$. Write down the maximum value of $y = \sin x^\circ + 5$, and the value of x ($0 \leq x \leq 360^\circ$) at which it occurs.

Answer _____

teachably

[2 marks]

Q5

Grade 8

Edexcel style

The height, h metres, of a car on a Ferris wheel above the ground is modelled by $h = 20 + 18 \sin x^\circ$, where x° is the angle turned from the start. Write down the maximum height and the minimum height of the car.

Answer _____

teachably

[4 marks]

AQA-style questions

Q6 

Grade 7

AQA style

Write down the period of the graph of $y = \tan x^\circ$.

Answer _____

teachably

[1 mark]

Q7 

Grade 7

AQA style

The diagram shows the graph of $y = \cos x^\circ$ for $0 \leq x \leq 360^\circ$. Write down the coordinates of the minimum point.

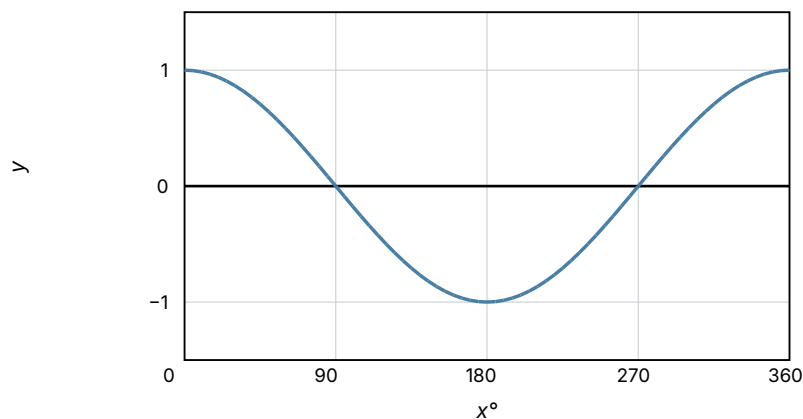


Diagram NOT accurately drawn

Answer _____

teachably

[2 marks]

Q8

Grade 8

AQA style

The diagram shows a transformation of the graph $y = \cos x^\circ$. Write down the equation of the graph shown.

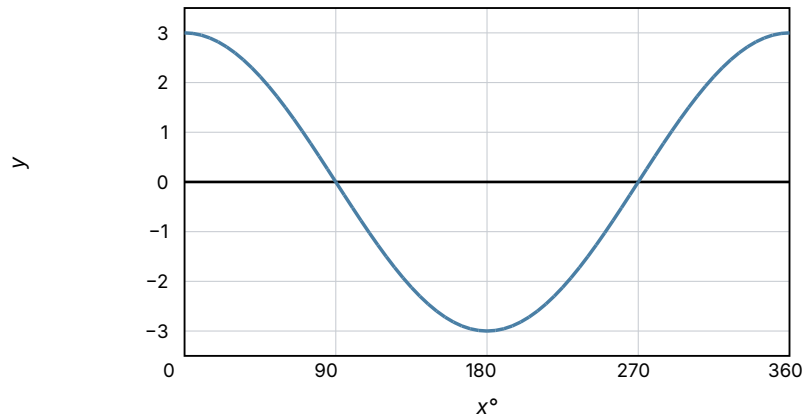


Diagram NOT accurately drawn

Answer _____

teachably

[2 marks]**Q9**

Grade 8

AQA style

The graph of $y = \cos x^\circ$ is transformed to $y = 4 \cos x^\circ$. Write down the minimum value of $y = 4 \cos x^\circ$, and the value of x ($0 \leq x \leq 360^\circ$) at which it occurs.

Answer _____

teachably

[2 marks]

Q10

Grade 8

AQA style

The depth of water, d metres, in a harbour is modelled by $d = 6 + 3 \cos x^\circ$, where x° represents the time since high tide. Write down the maximum depth and the minimum depth of the water.

Answer _____

teachably

[4 marks]

OCR-style questions

Q11 

Grade 7

OCR style

Write down the amplitude of the graph of $y = \cos x^\circ$.

Answer _____

teachably

[1 mark]

Q12 

Grade 7

OCR style

The diagram shows the graph of $y = \sin x^\circ$ for $0 \leq x \leq 360^\circ$. Write down the coordinates of the point where the curve crosses the y-axis.

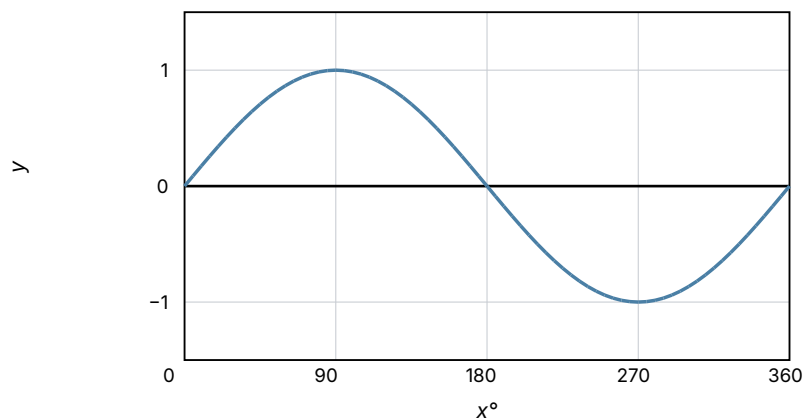


Diagram NOT accurately drawn

Answer _____

teachably

[2 marks]

Q13

Grade 8

OCR style

The diagram shows a transformation of the graph $y = \sin x^\circ$. Write down the equation of the graph shown.

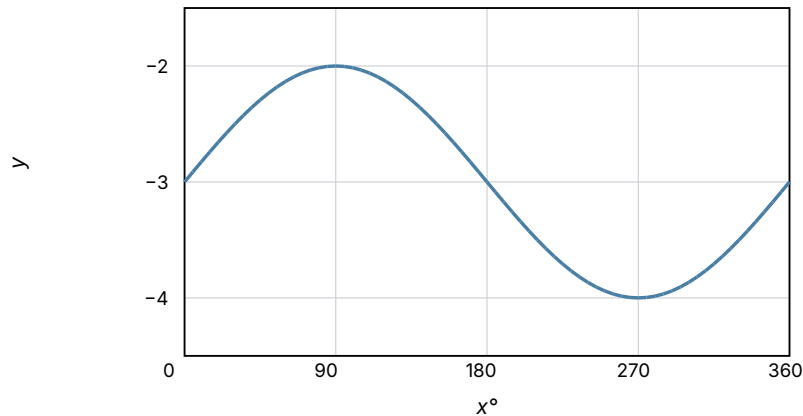


Diagram NOT accurately drawn

Answer _____

teachably

[2 marks]**Q14**

Grade 8

OCR style

The graph of $y = \sin x^\circ$ is transformed to $y = \sin x^\circ - 7$. Write down the minimum value of $y = \sin x^\circ - 7$, and the value of x ($0 \leq x \leq 360^\circ$) at which it occurs.

Answer _____

teachably

[2 marks]

Q15

Grade 8

OCR style

The temperature, $T^{\circ}\text{C}$, in a greenhouse over a 24-hour period is modelled by $T = 15 + 8 \sin x^{\circ}$, where x° represents the time of day. Write down the maximum temperature and the minimum temperature.

Answer _____

teachably

[4 marks]

Teachably-style questions

Q16 

Grade 7

Teachably style

Write down the number of times the graph of $y = \cos x^\circ$ crosses the x-axis for $0 \leq x \leq 360^\circ$.

Answer

teachably

[1 mark]

Q17 

Grade 7

Teachably style

The diagram shows the graph of $y = \cos x^\circ$ for $0 \leq x \leq 360^\circ$. Write down the coordinates of the point where the curve crosses the y-axis.

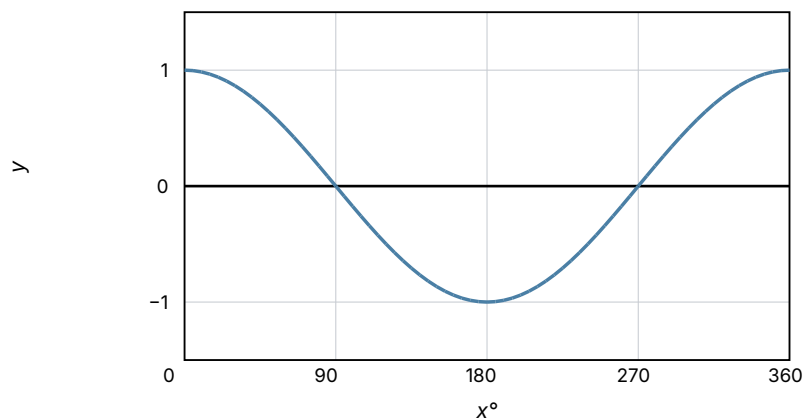


Diagram NOT accurately drawn

Answer

teachably

[2 marks]

Q18

Grade 8

Teachably style

The diagram shows a transformation of the graph $y = \cos x^\circ$. Write down the equation of the graph shown.

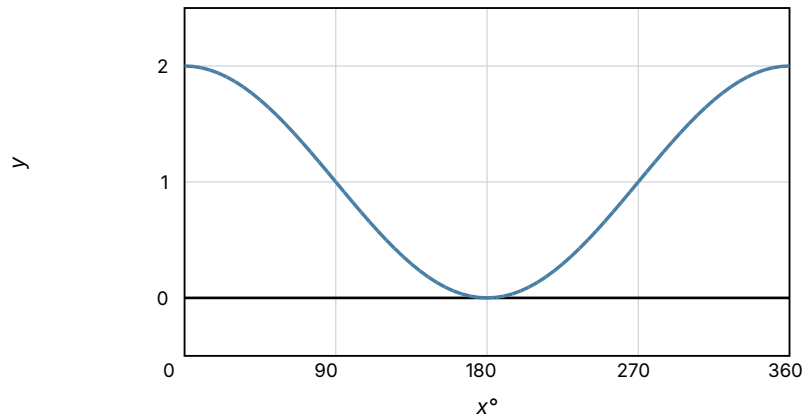


Diagram NOT accurately drawn

Answer _____

teachably

[2 marks]**Q19**

Grade 8

Teachably style

The graph of $y = \cos x^\circ$ is transformed to $y = 2 \cos x^\circ + 1$. Write down the maximum value of $y = 2 \cos x^\circ + 1$, and the value of x ($0 \leq x \leq 360^\circ$) at which it occurs.

Answer _____

teachably

[2 marks]

Q20

Grade 8

Teachably style

The height, h metres, of the tide in a bay is modelled by $h = 5 + 2.5 \cos x^\circ$, where x° represents the time since midnight. Write down the maximum height and the minimum height of the tide.

Answer _____

teachably

[4 marks]

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