
GCSE Mathematics

Trigonometric Graphs

Mark Scheme - Higher Tier | Grades 7-8

M = method mark, A = accuracy mark (dependent on the preceding M mark), B = independent mark.

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Edexcel-style questions

Q1 Grade 7 Edexcel style

Total: 1

Part	Mark scheme	Marks
(a)	360°	B1

Q2 Grade 7 Edexcel style

Total: 2

Part	Mark scheme	Marks
(a)	$x = 90^\circ$	B1
(a)	$y = 1$	B1

Q3 Grade 8 Edexcel style

Total: 2

Part	Mark scheme	Marks
(a)	the graph has the same shape as $y = \sin x^\circ$, shifted vertically up by 2	B1
(a)	$y = \sin x^\circ + 2$	B1

Q4 Grade 8 Edexcel style

Total: 2

Part	Mark scheme	Marks
(a)	maximum value = $1 + 5 = 6$	B1
(a)	$x = 90^\circ$	B1

Q5 Grade 8 Edexcel style

Total: 4

Part	Mark scheme	Marks
(a)	maximum height = $20 + 18 \times 1$	M1
(a)	maximum height = 38 m	A1
(a)	minimum height = $20 + 18 \times (-1)$	M1
(a)	minimum height = 2 m	A1

AQA-style questions

Q6 Grade 7 AQA style

Total: 1

Part	Mark scheme	Marks
(a)	180°	B1

Q7 Grade 7 AQA style

Total: 2

Part	Mark scheme	Marks
(a)	$x = 180^\circ$	B1
(a)	$y = -1$	B1

Q8 Grade 8 AQA style

Total: 2

Part	Mark scheme	Marks
(a)	the graph has amplitude 3 (maximum = 3, minimum = -3), so it is a vertical stretch by scale factor 3	B1
(a)	$y = 3 \cos x^\circ$	B1

Q9 Grade 8 AQA style

Total: 2

Part	Mark scheme	Marks
(a)	minimum value = $4 \times (-1) = -4$	B1
(a)	$x = 180^\circ$	B1

Q10 Grade 8 AQA style

Total: 4

Part	Mark scheme	Marks
(a)	maximum depth = $6 + 3 \times 1$	M1
(a)	maximum depth = 9 m	A1
(a)	minimum depth = $6 + 3 \times (-1)$	M1
(a)	minimum depth = 3 m	A1

OCR-style questions

Q11 Grade 7 OCR style**Total: 1**

Part	Mark scheme	Marks
(a)	1	B1

Q12 Grade 7 OCR style**Total: 2**

Part	Mark scheme	Marks
(a)	$x = 0$	B1
(a)	$y = 0$	B1

Q13 Grade 8 OCR style**Total: 2**

Part	Mark scheme	Marks
(a)	the graph has the same shape as $y = \sin x^\circ$, shifted vertically down by 3	B1
(a)	$y = \sin x^\circ - 3$	B1

Q14 Grade 8 OCR style**Total: 2**

Part	Mark scheme	Marks
(a)	minimum value = $-1 - 7 = -8$	B1
(a)	$x = 270^\circ$	B1

Q15 Grade 8 OCR style**Total: 4**

Part	Mark scheme	Marks
(a)	maximum temperature = $15 + 8 \times 1$	M1
(a)	maximum temperature = 23°C	A1
(a)	minimum temperature = $15 + 8 \times (-1)$	M1
(a)	minimum temperature = 7°C	A1

Teachably-style questions

Q16 Grade 7 Teachably style

Total: 1

Part	Mark scheme	Marks
(a)	2	B1

Q17 Grade 7 Teachably style

Total: 2

Part	Mark scheme	Marks
(a)	$x = 0$	B1
(a)	$y = 1$	B1

Q18 Grade 8 Teachably style

Total: 2

Part	Mark scheme	Marks
(a)	the graph has the same shape as $y = \cos x^\circ$, shifted vertically up by 1	B1
(a)	$y = \cos x^\circ + 1$	B1

Q19 Grade 8 Teachably style

Total: 2

Part	Mark scheme	Marks
(a)	maximum value = $2 \times 1 + 1 = 3$	B1
(a)	$x = 0^\circ$	B1

Q20 Grade 8 Teachably style

Total: 4

Part	Mark scheme	Marks
(a)	maximum height = $5 + 2.5 \times 1$	M1
(a)	maximum height = 7.5 m	A1
(a)	minimum height = $5 + 2.5 \times (-1)$	M1
(a)	minimum height = 2.5 m	A1

END OF PAPER

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