3.4 Trigonometric Graphs and Transformations: 10-minute Pack

AQA 8365 · Calculator allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Consider the graph of $y = \cos(x)$ for $0 \leq x \leq 360$.

(a) State the coordinates of the y-intercept. **(1)**

(b) State the two values of x, with $0 \leq x \leq 360$, at which the graph crosses the x-axis. **(2)**

(c) State the coordinates of the minimum point. **(1)**

(Total for Question 1 is 4 marks)

2 The graph of $y = -\cos(x)$ is drawn for $0 \leq x \leq 360$.

(a) Describe fully the single transformation that maps $y = \cos(x)$ onto $y = -\cos(x)$. **(1)**

(b) State the coordinates of the maximum point of $y = -\cos(x)$. **(2)**

(c) State the coordinates of one minimum point of $y = -\cos(x)$ in the given range. **(1)**

(Total for Question 2 is 4 marks)

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3 The graph of $y = \cos(x)$ is translated by vector (90, 0) and then stretched by scale factor 2 parallel to the y-axis, in that order.

(a) Write down the equation of the resulting graph. **(2)**

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(Total for Question 3 is 2 marks)

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Mark scheme · 3.4 Trigonometric Graphs and Transformations: 10-minute Pack

Question 1

(a) (0, 1) oe **B1**

(a) Answer: (0, 1)

(b) x = 90 **B1**

(b) x = 270 **B1**

(b) Answer: x = 90, 270

(c) (180, -1) oe **B1**

(c) Answer: (180, -1)

Question 2

(a) reflection in the x-axis oe **B1**

(a) Answer: Reflection in the x-axis

(b) cos(x) is a minimum (-1) at x = 180, so -cos(x) = -(-1) = 1 **M1**

(b) (180, 1) cao **A1**

(b) Answer: (180, 1)

(c) (0, -1) or (360, -1) oe, one required **B1**

(c) Answer: (0, -1)

Question 3

(a) applies the translation correctly to give cos(x - 90) **M1**

(a) y = 2cos(x - 90) oe cao **A1**

(a) Answer: y = 2cos(x - 90)

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