Transforming Trig Graphs

Specification: AQA 7357: E3, B9 · Edexcel 9MA0: 5.3, 2.9

HOMEWORK Consolidation

1 Sketch the graph of $y = -2\sin x$ for $0° \le x \le 360°$. Show the coordinates of the points where the graph meets the axes and of its maximum and minimum points.

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2 Sketch the graph of $y = \cos(x - 60°)$ for $0° \le x \le 360°$. Show the coordinates of the points where the graph meets the axes and of its maximum and minimum points.

AQA E3 · Edexcel 5.3 · L7

3 Write down the period of

(a) $y = \cos 5x$

(b) $y = \tan \frac{1}{2}x$

(c) $y = \sin(x + 40°)$

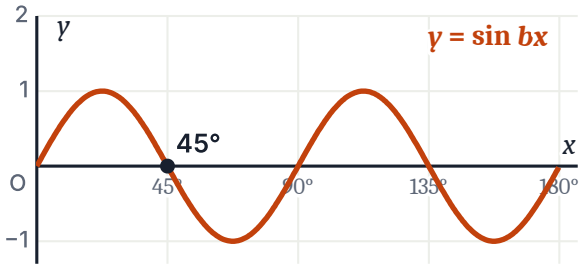
AQA E3 · Edexcel 5.3 · L7

4 The graph shows $y = \sin bx$, $0° \le x \le 180°$, where b is a positive constant. It passes through the origin and next meets the x-axis at 45°.

(a) Find b.

(b) Write down the coordinates of the first maximum point.

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5 A triangle has sides 5 cm, 7 cm and 9 cm. Find the size of its largest angle.

AQA E1 · Edexcel 5.1 · L1

6 In triangle ABC, BC = 10 cm, angle BAC = 35° and angle ABC = 70°. Find AC.

AQA E1 · Edexcel 5.1 · L2

7 In triangle ABC, AB = 11 cm, AC = 8 cm and angle ABC = 38°. Find the two possible values of angle ACB.

AQA E1 · Edexcel 5.1 · L3

8 In triangle PQR, PQ = 9.5 cm, PR = 6 cm and angle QPR = 75°. Find the area of the triangle.

AQA E1 · Edexcel 5.1 · L4

9 A boat sails 15 km from P to Q on a bearing of 040°, then 9 km from Q to R on a bearing of 150°. Find the distance PR.

AQA E1 · Edexcel 5.1 · L5

10 Use the graph of $y = \cos\theta$ to find all the values of θ in the interval $0° \le \theta \le 720°$ for which $\cos\theta = \cos 40°$.

AQA E3 · Edexcel 5.3 · L6

11 *AQA-style*. (a) Describe a single geometrical transformation that maps the graph of $y = \tan x$ onto the graph of $y = \tan 2x$. [1 mark]

(b) Sketch the graph of $y = \tan 2x$ for $0° \le x \le 180°$, showing the asymptotes and the points where the graph meets the x-axis. [3 marks]

(c) State the number of solutions of $\tan 2x = 3$ for $0° \le x \le 180°$. [1 mark]

AQA E3 · Edexcel 5.3 · L7 · AQA-style

12 *Edexcel-style*. (a) Sketch the graph of $y = \sin(x + 30°)$ for $0° \le x \le 360°$. Show the coordinates of the points where the graph meets the axes. [3 marks]

(b) Write down the coordinates of the maximum and minimum points. [2 marks]

(c) Given that $\sin 30° = \frac{1}{2}$, use your graph to find the values of x in $0° \le x \le 360°$ for which $\sin(x + 30°) = \frac{1}{2}$. [2 marks]

AQA E3 · Edexcel 5.3 · L6, L7 · Edexcel-style