Further Pure Maths: Radians and Trigonometry: 10-minute Pack

EDEXCEL 4PM1 · Calculator allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Show your working. Use radians or degrees as stated in each question. Give exact answers unless a degree of accuracy is specified. Questions marked non-calculator should be attempted without a calculator. Accept equivalent exact forms and valid alternative methods for the corresponding marks.

1 Solve $2\sin(x)^2 - 3\sin(x) + 1 = 0$ for $0 \leq x < 2\pi$. Give every solution exactly in radians.

(Total for Question 1 is 4 marks)

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2 Use a compound-angle formula to find the exact value of cos(75 degrees). Show your working.

(Total for Question 2 is 3 marks)

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Mark scheme · Further Pure Maths: Radians and Trigonometry: 10-minute Pack

Question 1

Factor to (2*sin(x) - 1)*(sin(x) - 1) = 0, or solve the quadratic in sin(x).	**M1**
Obtain sin(x) = 1/2 and sin(x) = 1.	**A1**
π/6 and 5*π/6 from sin(x) = 1/2.	**A1**
π/2 from sin(x) = 1, with no other solutions in the interval.	**A1**

Answer: x = π/6, π/2, 5*π/6

Question 2

Use cos(45 + 30) = cos(45)*cos(30) - sin(45)*sin(30), or another valid compound-angle decomposition.	**M1**
Substitute the appropriate exact trigonometric values.	**M1**
$(\sqrt{6} - \sqrt{2})/4$; accept equivalent exact forms.	**A1**

Answer: $(\sqrt{6} - \sqrt{2})/4$

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