1.13 Pure: Trigonometry Depth: 10-minute Pack

EDEXCEL 9MA0 · Calculator allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 This question is about trigonometric identities and equations.

(a) Show that tan x + cot x = 2/sin 2x. **(3)**

(b) Hence solve tan x + cot x = 8 for 0 < x < 360 degrees, giving your answers to 1 decimal place. **(4)**

(Total for Question 1 is 7 marks)

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2 State the exact value of sin(30 degrees).

(Total for Question 2 is 1 mark)

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Mark scheme · 1.13 Pure: Trigonometry Depth: 10-minute Pack

Question 1

(a) writes $\tan x + \cot x = \sin x/\cos x + \cos x/\sin x$	**M1**
(a) combines to $(\sin^2 x + \cos^2 x)/(\sin x \cos x)$	**M1**
(a) uses $\sin^2 x + \cos^2 x = 1$ and $\sin x \cos x = (1/2) \sin 2x$ to give $2/\sin 2x$ (cso)	**A1**

(a) Answer: $\tan x + \cot x = 2/\sin 2x$

(b) forms $\sin 2x = 2/8 = 1/4$	**M1**
(b) $2x = 14.5$ or $180 - 14.5$, then adds 360	**M1**
(b) two correct values	**A1**
(b) all four values: 7.2, 82.8, 187.2, 262.8	**A1**

(b) Answer: x = 7.2, 82.8, 187.2, 262.8

Question 2

1/2 cao	**B1**

Answer: 1/2

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