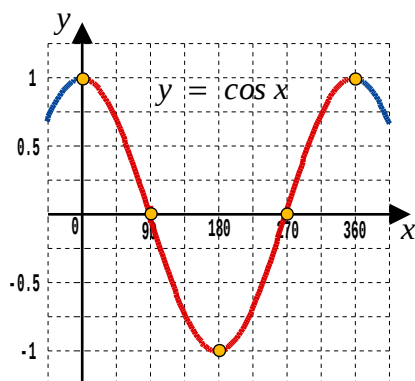


9.2 Answers

Additional Mathematics A-Level Pure Mathematics : Year 1 Trigonometry IV

Answer 1

(a)



[2, 1, 1 marks]

(b) 136.7° , 223.3°

[4 marks]

Answer 2

(a) $\cos x = \frac{\sqrt{11}}{6}$

(b) $\tan x = \frac{5\sqrt{11}}{11}$

[3, 3 marks]

Answer 3

24.3° , 65.7° , 204.3° , 245.7°

Answer 4

35.3° , 144.7° , 215.3° , 324.7°

[5, 5 marks]

Answer 5

(a)

$$\begin{aligned} 7 \sin^2 x - 19 \cos x - 1 &= 0 \\ 7(1 - \cos^2 x) - 19 \cos x - 1 &= 0 \\ 7 - 7 \cos^2 x - 19 \cos x - 1 &= 0 \\ 7 \cos^2 x + 19 \cos x - 6 &= 0 \end{aligned}$$

[3 marks]

(b) 73.4° , 286.6° , 433.4° , 646.6°

[6 marks]

Answer 6

45° , 101.3° , 225° , 281.3°

Answer 7

14.5° , 165.5°

[6, 6 marks]

Answer 8

$$\begin{aligned}\text{LHS} &= \tan^2 x - \sin^2 x - \tan^2 x \times \sin^2 x \\&= \left(\frac{b}{a}\right)^2 - \left(\frac{b}{c}\right)^2 - \left(\frac{b}{a}\right)^2 \times \left(\frac{b}{c}\right)^2 \\&= \frac{c^2 \times b^2}{c^2 \times a^2} + \frac{a^2 \times b^2}{a^2 \times c^2} - \frac{b^2 \times b^2}{a^2 \times c^2} \\&= \frac{b^2(c^2 - a^2) - b^2 \times b^2}{c^2 \times a^2} \\&= \frac{b^2 \times b^2 - b^2 \times b^2}{c^2} \\&= 0 \\&= \text{RHS} \quad \square\end{aligned}$$

[5 marks]