Trigonometry 3

17 November 2024 14:20

$$(0)(20) = (0)^{2}0 - \sin^{2}0 = (-2\sin^{2}0)$$

$$\Rightarrow 2\sin^2\theta = 1-\cos(2\theta)$$

$$\Rightarrow \sin\theta = \pm \sqrt{\frac{1-\cos^2\theta}{2}}$$

$$2 \sin^2 \theta = 1 - \cos(2\theta)$$

$$\Rightarrow \sin \theta = \pm \sqrt{\frac{1 - \cos 2\theta}{2}}$$

$$\sin(\frac{x}{2}) = \pm \sqrt{\frac{1 - \cos x}{2}}$$

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 $\cos\left(\frac{x}{2}\right) = \pm \sqrt{\frac{1+\cos x}{2}}$

$$ton\left(\frac{x}{2}\right) = \frac{\sin\left(\frac{x}{2}\right)}{\cos\left(\frac{x}{2}\right)}$$

$$= \pm \sqrt{\frac{1-\cos x}{1+\cos x}} = \frac{\sin x}{1+\cos x} = \frac{1-\cos x}{\sin x}$$

$$ton(20) = \frac{2ton0}{1-ton^20} \Rightarrow (ton20) ton^20 + 2ton0 - ton20 = 0$$

$$\Rightarrow ton0 = \frac{-2 \pm \sqrt{4 + 4 + 6n^2 + 20}}{2 + on20}$$

$$\Rightarrow ton0 = \frac{-1 \pm \sec 20}{\cot \cos 20} = \frac{-\cos 20 \pm 1}{\cos 20} = \frac{\pm 1 - \cos 20}{\sin 20}$$

$$ton0 = \frac{1-\cos 20}{\cos 20}$$

$$2\cos\left(\frac{x+\beta}{2}\right)\cos\left(\frac{x-\beta}{2}\right)$$

$$= 2\left(\cos^{2}\frac{x}{2}\cos^{2}\frac{x}{2} - \sin^{2}\frac{x}{2}\sin^{2}\frac{x}{2}\right)$$

$$= \cos x - \cos^{2}\frac{x}{2} + \sin^{2}\frac{x}{2} + 2\cos^{2}\frac{x}{2}\cos^{2}\frac{x}{2} - 2\sin^{2}\frac{x}{2}\sin^{2}\frac{x}{2}$$

$$= \cos x + \cos^{2}\frac{x}{2}\left(2\cos^{2}\frac{x}{2} - 1\right) + \sin^{2}\frac{x}{2}\left(1 - 2\sin^{2}\frac{x}{2}\right)$$

$$= \cos x + \cos^{2}\frac{x}{2}\left(\cos x\right) + \sin^{2}\frac{x}{2}\left(\cos x\right)$$

$$= \cos x + \cos x$$

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n == 20 + (== 2 N) RETO, 3607

HomeWork

B) Find the range of sector + cost for Q \in [0, 360]

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