

6. $\sin x + \sin 3x = 0$ denkleminin $(0, 180)$ aralığında kaç kökü vardır?

$$\sin x = -\sin 3x = \sin(180 + 3x) \quad (3)$$

$$x = 180 + 3x + k \cdot 360 \quad (2) \quad x = 180 - (180 + 3x) + k \cdot 360$$

$$-2x = 90 + k \cdot 360 \quad \checkmark \quad x = -3x + k \cdot 360$$

$$x = -45 - k \cdot 180 \quad \checkmark \quad 4x = k \cdot 360$$

$$x = k \cdot 90$$

$$x_1 = 135 \quad (1) \quad x_2 = 90 \quad (1)$$

2 kök (1)

7. $x+y=40^\circ$ olmak üzere $\frac{\sin x + \sin y + \sin 20}{\cos x + \cos y + \cos 20} = \cot A$ ise A kaç derece olabilir?

$$2 \sin \frac{x+y}{2} \cdot \cos \frac{x-y}{2} + \sin 20 \quad (2)$$

$$\frac{2 \cos \frac{x+y}{2} \cdot (\cos \frac{x-y}{2} + \cos 20)}{\sin 20 (2 \cos \frac{x-y}{2} + 1)} = \tan 20 \quad (2)$$

$$\frac{\cos 20 (2 \cos \frac{x-y}{2} + 1)}{\cos 20 (2 \cos \frac{x-y}{2} + 1)} = \tan 20 \quad (2)$$

$$\tan 20 = \cot A \rightarrow A = 70^\circ$$

$$A = 250^\circ \quad (2)$$

8. $\sin 2x = p$ ise $\cos^6 x - \sin^6 x$ p türünden nedir?

$$(\cos^3 x - \sin^3 x)(\cos^3 x + \sin^3 x) \quad (4)$$

$$(\cos x - \sin x)(\cos^2 x + (\cos x)\sin x + \sin^2 x) \cdot (\cos x + \sin x)(\cos^2 x - (\cos x)\sin x + \sin^2 x)$$

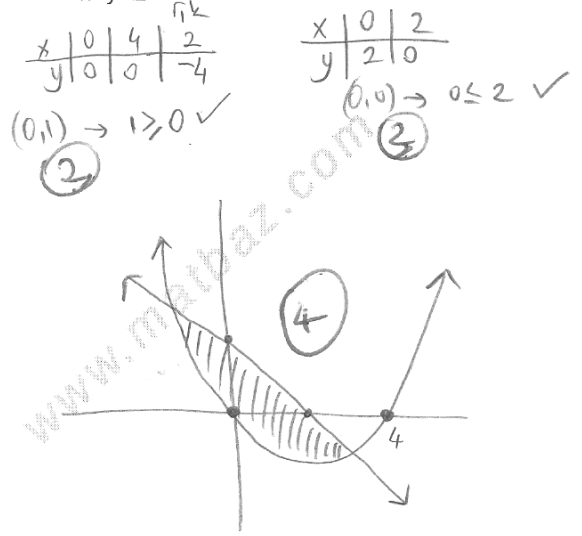
$$\cos^2 x - \sin^2 x \cdot (1 + \cos x \sin x) \cdot (1 - \cos x \sin x)$$

$$\cos 2x \cdot (1 - (\cos x \sin x)^2) \quad (2)$$

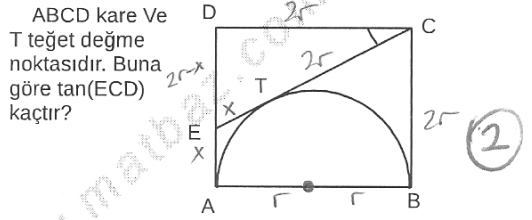
$$\cos 2x \cdot \left[1 - \left(\frac{p}{2}\right)^2\right] \quad (2)$$

$$\sqrt{1-p^2} \cdot \left[1 - \frac{p^2}{4}\right] \quad (2)$$

9. $y \geq x^2 - 4x$ eşitsizlik sistemini çizerek gösteriniz $x+y \leq 2$



10. ABCD kare ve T teğet değme noktasıdır. Buna göre $\tan(\angle ECD)$ kaçtır?

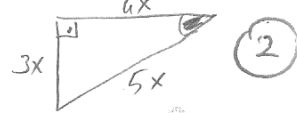


$$(x+2r)^2 = (2r-x)^2 + (2r)^2 \quad (2)$$

$$x^2 + 4r^2 + 4rx = 4r^2 - 4rx + x^2 + 4r^2 \quad (2)$$

$$8rx = 4r^2 \quad (2)$$

$$2x = r$$



$$\tan(\angle ECD) = 3/4 \quad (2)$$