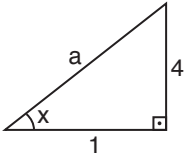


$$1. \quad \cos x = \frac{\sin x}{4} \Rightarrow 4 \cdot \cos x = \sin x$$

$$\Rightarrow \frac{\cos x}{\sin x} = \frac{1}{4}$$

$$\Rightarrow \cot x = \frac{1}{4}$$



$$a^2 = 4^2 + 1^2$$

$$a^2 = 16 + 1$$

$$a = \sqrt{17}$$

$$\sin 2x = 2 \cdot \sin x \cdot \cos x$$

$$= 2 \cdot \frac{4}{a} \cdot \frac{1}{a}$$

$$= \frac{8}{a^2} = \frac{8}{(\sqrt{17})^2} = \frac{8}{17}$$

$$2. \quad \cos 4x = \cos 2x$$

$$4x = 2x + 2k\pi$$

$$4x = -2x + 2k\pi$$

$$\rightarrow 2x = 2k\pi \Rightarrow x = k\pi \Rightarrow k = 1$$

$$\rightarrow 6x = 2k\pi \Rightarrow 3x = k\pi \Rightarrow k = 1$$

$\frac{\pi}{3}$ ,  $0 < x < \pi$  aralığında olup

$$x = \frac{\pi}{3} \text{ olur.}$$

Cevap: E

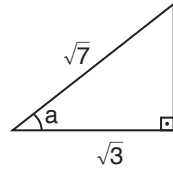
Cevap: D

$$3. \quad \arccos = \cos^{-1}$$

$$\cot \left( \underbrace{\arccos \left( \sqrt{\frac{3}{7}} \right)}_a \right) = \cot a$$

$$\arccos \left( \sqrt{\frac{3}{7}} \right) = a$$

$$\cos a = \sqrt{\frac{3}{7}} = \frac{\sqrt{3}}{\sqrt{7}}$$



$$(\sqrt{7})^2 = t^2 + (\sqrt{3})^2$$

$$7 = t^2 + 3$$

$$4 = t^2$$

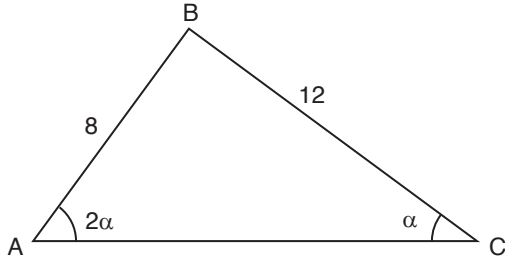
$$\boxed{2 = t}$$

$$\text{O halde } \cot \left( \arccos \left( \sqrt{\frac{3}{7}} \right) \right) = \cot a$$

$$= \frac{\sqrt{3}}{t} = \frac{\sqrt{3}}{2}$$

Cevap: C

4.



$$\frac{12}{\sin 2\alpha} = \frac{8}{\sin \alpha}$$

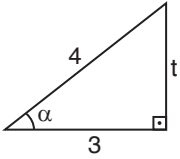
$$\frac{12}{2 \cdot \sin \alpha \cdot \cos \alpha} = \frac{8}{\sin \alpha}$$

$$\frac{12}{2 \cos \alpha} = 8$$

$$12 = 16 \cdot \cos \alpha$$

$$\frac{12}{16} = \cos \alpha$$

$$\cos \alpha = \frac{3}{4}$$



$$4^2 = t^2 + 3^2$$

$$16 = t^2 + 9$$

$$t = t^2$$

$$t = \sqrt{7}$$

$$\tan \alpha = \frac{t}{3} = \frac{\sqrt{7}}{3}$$

Cevap: D

$$5. \quad \cos(\alpha - 3\pi) + \sin\left(\alpha - \frac{\pi}{2}\right)$$

$$\cos(-(3\pi - \alpha)) + \sin\left(-\left(\frac{\pi}{2} - \alpha\right)\right)$$

$$\cos(3\pi - \alpha) - \sin\left(\frac{\pi}{2} - \alpha\right)$$

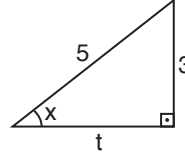
$$\cos(2\pi + \pi - \alpha) - \sin\left(\frac{\pi}{2} - \alpha\right)$$

$$\cos(\pi - \alpha) - \cos(\alpha)$$

$$-\cos \alpha - \cos \alpha = -2\cos \alpha$$

Cevap: D

$$6. \quad \sin x = 0,6 \Rightarrow \sin 2x = ?$$



$$5^2 = 3^2 + t^2$$

$$t = 4$$

$$\sin 2x = 2 \cdot \sin x \cdot \cos x$$

$$= 2 \cdot \frac{3}{5} \cdot \frac{4}{5} = \frac{24}{25}$$

Cevap: E

$$7. \quad (\sin x - \cos x)^2 = \left(\frac{1}{\sqrt{3}}\right)^2$$

$$\sin^2 x - 2 \cdot \sin x \cdot \cos x + \cos^2 x = \frac{1}{3}$$

$$\sin^2 x + \cos^2 x - \sin 2x = \frac{1}{3}$$

$$1 - \frac{1}{3} = \sin 2x$$

$$\frac{2}{3} = \sin 2x$$

Cevap: A

$$8. \quad \tan 75 - \cot 75 = \frac{\sin 75}{\cos 75} - \frac{\cos 75}{\sin 75}$$

$$= \frac{\sin^2 75 - \cos^2 75}{\sin 75 \cdot \cos 75}$$

$$= \frac{\sin^2 75 - \cos^2 75}{2 \cdot \sin 75 \cdot \cos 75}$$

$$= \frac{-\cos 150}{2} = \frac{-2 \cdot \cos 150}{2 \cdot \sin 150}$$

$$= -2 \cdot \cot(150)$$

$$= -2 \cdot \cot(180 - 30)$$

$$= +2 \cdot \cot 30$$

$$= +2\sqrt{3}$$

Cevap: B

$$9. \sin \left[ \underbrace{\arcsin\left(-\frac{1}{2}\right)}_a + 2 \cdot \underbrace{\arcsin\left(\frac{\sqrt{3}}{2}\right)}_b \right]$$

$$\arcsin\left(-\frac{1}{2}\right) = a \Rightarrow \sin a = -\frac{1}{2}$$

$$a = 150$$

$$\arcsin\left(\frac{\sqrt{3}}{2}\right) = b \Rightarrow \sin b = \frac{\sqrt{3}}{2}$$

$$b = 60$$

$$\begin{aligned} \sin(a + 2b) &= \sin(150 + 2 \cdot 60) \\ &= \sin(150 + 120) \\ &= \sin 270 \\ &= -1 \end{aligned}$$

Cevap: D

$$\begin{aligned} 10. \frac{1}{2} - \sin^2 \frac{\pi}{12} &= \frac{1}{2} - \sin^2 15 \\ &= \frac{1 - 2\sin^2 15}{2} \\ &= \frac{\cos 30}{2} = \frac{\frac{\sqrt{3}}{2}}{2} \\ &= \frac{\sqrt{3}}{4} \end{aligned}$$

Cevap: B

$$\begin{aligned} 11. \frac{\cos 105^\circ}{\sin 15^\circ} \\ \frac{\cos(90 + 15)}{\sin 15} &= \frac{\sin 15}{\sin 15} = 1 \end{aligned}$$

Cevap: D

$$\begin{aligned} 12. \sqrt{3} \cdot \sin \frac{\pi}{6} \cdot \cos \frac{\pi}{6} &= \sqrt{3} \cdot \frac{1}{2} \cdot \frac{\sqrt{3}}{2} \\ &= \frac{3}{4} \end{aligned}$$

Cevap: D

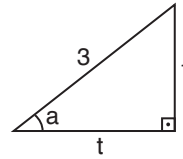
$$\begin{aligned} 13. \frac{\sin 7 \cdot \cos 7}{\sin 83 \cdot \cos 97} &= \frac{\sin 7 \cdot \cos 7}{\sin(90 - 7) \cdot \cos(90 + 7)} \\ &= \frac{\sin 7 \cdot \cos 7}{-\sin 7 \cdot \sin 7} = -1 \end{aligned}$$

Cevap: C

$$14. \cos \left( \pi - \underbrace{\arcsin \frac{1}{3}}_a \right)$$

$$\arcsin \frac{1}{3} = a$$

$\sin a = \frac{1}{3}$  olur. Öte yandan  $\cos(\pi - a) = -\cos a$  yi istiyor.



$$3^2 = t^2 + 1^2$$

$$9 = t^2 + 1$$

$$8 = t^2$$

$$2\sqrt{2} = t \text{ olup } -\cos a = -\frac{t}{3}$$

$$= -\frac{2\sqrt{2}}{3}$$

Cevap: D

$$15. \frac{1}{\cot x} - \frac{1}{\tan x} = 2$$

$$\frac{\tan x - \cot x}{\tan x \cdot \cot x} = 2$$

$\tan x - \cot x = 2$  karesini alalım.

$$(\tan x - \cot x)^2 = 2^2$$

$$\tan^2 x - 2\tan x \cdot \cot x + \cot^2 x = 4$$

$$\tan^2 x + \cot^2 x - 2 \cdot 1 = 4$$

$$\tan^2 x + \cot^2 x = 6$$

Cevap: B

$$16. \frac{\sin 20 \cdot \cos 15 + \cos 20 \cdot \sin 15}{\cos 65 \cdot \cos 10 + \sin 65 \cdot \sin 10}$$

$$\frac{\sin 35}{\cos 55} = \frac{\sin 35}{\sin 35} = 1$$

Cevap: E

$$17. \frac{\cos 2x}{\cos^2 x - \sin^2 x} - \frac{1}{\sin^2 x + \cos^2 x} = ?$$

$$\frac{\cos^2 x - \sin^2 x}{\cos^2 x - \sin^2 x} - \frac{1}{\sin^2 x + \cos^2 x}$$

$$\cos^2 x - \sin^2 x = \cos 2x$$

Cevap: E

$$18. \left( \frac{\sin 2x}{2} + \frac{\sin^2 x}{\tan x + \operatorname{cosec} x} \right) : \cos x$$

$$\left( \frac{\sin 2x}{2} + \frac{\cos x}{\sin x} + \frac{1}{\sin x} \right) : \cos x$$

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

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

$$\left( \sin x \cdot \cos x + \frac{(1 - \cos x)(1 + \cos x) \cdot \sin x}{\cos x + 1} \right) \cdot \frac{1}{\cos x}$$

$$\frac{\sin x \cdot \cos x + \sin x - \sin x \cdot \cos x}{\cos x} = \tan x$$

Cevap: C

$$19. \tan(x + 45) = 2$$

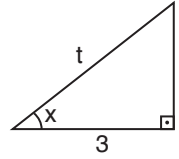
$$\frac{\tan x + \tan 45}{1 - \tan x \cdot \tan 45} = 2$$

$$\frac{\tan x + 1}{1 - \tan x} = 2$$

$$\tan x + 1 = 2 - 2 \tan x$$

$$3 \cdot \tan x = 1$$

$$\tan x = \frac{1}{3}$$



$$t^2 = 1^2 + 3^2$$

$$t = \sqrt{10}$$

$$\sin x = \frac{1}{t} = \frac{1}{\sqrt{10}}$$

Cevap: A

TASARI EĞİTİM YAYINLARI

$$20. \sin 2x + \sin x = 0$$

$$\sin 2x = -\sin x$$

$$\sin 2x = \sin(-x)$$

$$2x = -x + 2k\pi \Rightarrow 3x = 2k\pi \quad k = 0 \quad x = 0$$

$$k = 1 \quad x = \frac{2\pi}{3}$$

$$k = 2 \quad x = \frac{4\pi}{3}$$

$$2x = \pi - (-x) + 2k\pi \Rightarrow x = \pi + 2\pi$$

Cevap: C