

$$الف) 17^\circ = (x) \text{ rad} \Rightarrow 17 \times \frac{\pi}{180} = \boxed{\frac{17\pi}{180} \text{ rad}}$$

$$ب) 120^\circ = (x) \text{ rad} \Rightarrow 120 \times \frac{\pi}{180} = \boxed{\frac{2\pi}{3} \text{ rad}}$$

$$ج) \frac{5\pi}{12} \text{ rad} = (x)^\circ \Rightarrow \frac{5\pi}{12} \times \frac{180}{\pi} = 5 \times 15 = \boxed{75^\circ}$$

$$د) \frac{5\pi}{9} \text{ rad} = (x)^\circ \Rightarrow \frac{5\pi}{9} \times \frac{180}{\pi} = 5 \times 20 = \boxed{100^\circ}$$

$$100^\circ \quad \frac{120\pi}{9} \text{ rad} \quad \frac{5\pi}{12} \text{ rad}$$

10

$$\frac{\frac{120\pi}{9}}{2\pi} = \frac{x}{180} \Rightarrow \frac{120\pi}{9 \times 2\pi} = \frac{x}{180} \Rightarrow \frac{20}{3} = \frac{x}{180}$$

$$\frac{20 \times 180}{3} = x \Rightarrow 1200 = x \Rightarrow 1200^\circ = x$$

15

$$\frac{\frac{5\pi}{12}}{\pi} = \frac{x}{180} \Rightarrow \frac{5}{12} = \frac{x}{180} \Rightarrow \frac{5 \times 180}{12} = x \Rightarrow 75 = x$$

$$75^\circ + 120^\circ + 100^\circ = 295^\circ \quad 295^\circ = 180^\circ \quad 295^\circ - 180^\circ = 115^\circ$$

20

$$a = \frac{180}{x} \Rightarrow \boxed{a = 1.5}$$

Subject

Date : Year: Month: Day:

الف) $\cos 4. \cos 3. - \sin 4. \sin 3. - \tan 4. + \cot 3.$ - 3

$$= \left(\frac{\sqrt{3}}{2}\right)\left(\frac{1}{2}\right) - \left(\frac{1}{2}\right)\left(\frac{\sqrt{3}}{2}\right) - 1 + 2 = 1$$

ب) $\frac{\left(\frac{1}{\sqrt{3}}\right)^2 + 1^2 + (\sqrt{3})^2}{\sqrt{3} - \frac{1}{\sqrt{3}}} = \frac{\frac{1}{3} + 1 + 3}{\frac{\sqrt{3}}{3} - \frac{\sqrt{3}}{3}} = \frac{13}{0} = \boxed{\frac{13}{3}}$ 5

- $\sin 3. \cos 4. + \cos 3. \sin 4. = \tan^2 \theta$ - 10

$$\underbrace{\frac{1}{2} \cdot \frac{1}{2}}_{-\frac{1}{4}} + \underbrace{\frac{\sqrt{3}}{2} \cdot \frac{\sqrt{3}}{2}}_{\frac{3}{4}} = \frac{2}{4} = \frac{1}{2}$$

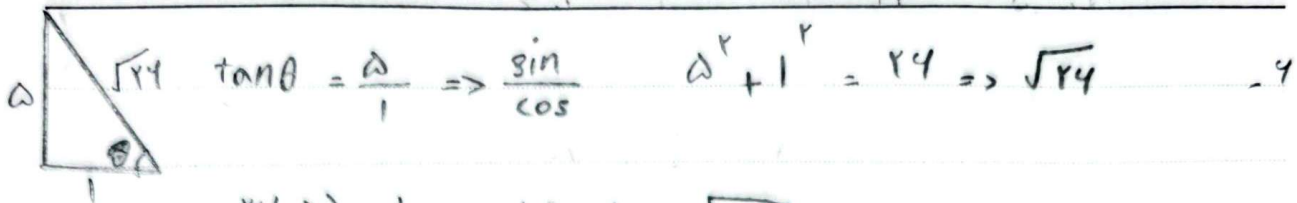
$\tan^2 \theta = \frac{1}{2} \Rightarrow \tan \theta = \pm \frac{1}{\sqrt{2}} = \pm \frac{\sqrt{2}}{2} \Rightarrow \boxed{\tan \theta = + \frac{\sqrt{2}}{2}}$ 15

$\frac{r \tan 3. (1 - \tan^2 3.)}{(1 - \cot^2 4.)^2} = \frac{r \times \frac{1}{\sqrt{3}} (1 - \frac{1}{3})}{(1 - 3)^2} = \frac{\frac{r}{\sqrt{3}} \times \frac{2}{3}}{4}$ - 20

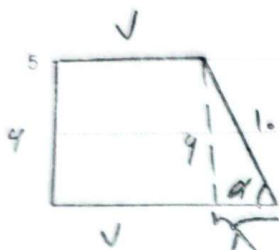
$\Rightarrow \frac{r \sqrt{3}}{6} = \sqrt{3} = \tan \theta \Rightarrow \boxed{\theta = 4. = \frac{\pi}{4}}$

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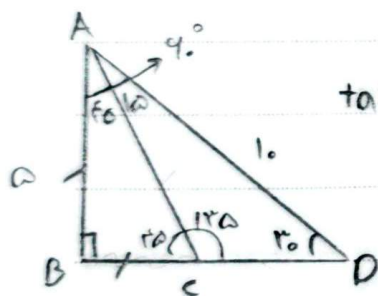
$$\frac{f(\omega) - 1}{\omega - f(1)} = \frac{1\omega - 1}{1} = \boxed{1f}$$



$$\sin \alpha = \frac{4}{10} = \frac{2}{5}$$

$$4^2 + \boxed{} = 10^2 \Rightarrow 100 - 16 = 84 = \boxed{8^2}$$

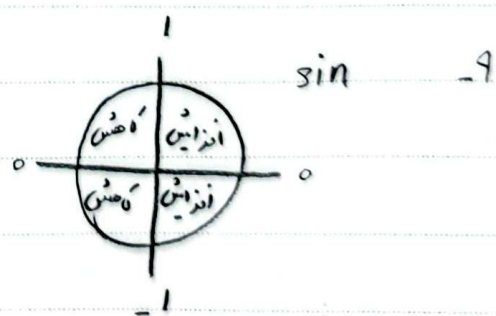
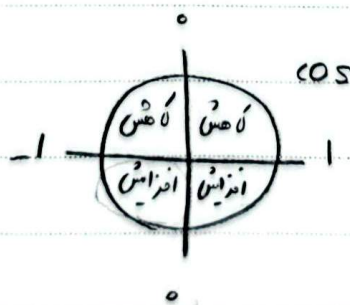
$$10 + 10 + 4 + 4 = \boxed{38}$$



$$\tan A = \frac{BC}{AB} = 1 \Rightarrow BC = AB$$

$$\frac{\sqrt{2}}{2} \times 10 = 5\sqrt{2} \text{ (مقابل 45)} \quad 10 \times \frac{1}{2} = 5 \text{ (مقابل 90)}$$

$$BD - BC = CD \Rightarrow 5\sqrt{2} - 5 \Rightarrow 5(\sqrt{2} - 1) = DC$$



الف) در ربع سوم

ب) در ربع دوم

parsian

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$$\tan x = \frac{\sin x}{\cos x} = \frac{1}{3} \quad \begin{array}{c} \text{hypotenuse} = \sqrt{10} \\ \text{adjacent} = 3 \\ \text{opposite} = 1 \end{array} \quad \text{for } \cos, \sin \rightarrow \text{adj} \quad \text{for } \sin \rightarrow \text{opp}$$

$$3^2 + 1^2 = 9 + 1 = 10 \Rightarrow \sqrt{10}$$

$$\boxed{\sin x = -\frac{1}{\sqrt{10}}}$$