

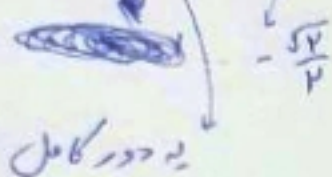
$\tan \pi = 0$
 $\tan(\sqrt{r}\pi + \frac{r\pi}{r}) = -1$

$\sin \pi = 0$
 $\sin(\sqrt{r}\pi + \frac{r\pi}{r}) = -\frac{\sqrt{r}}{r}$

آنگاه نسبت قاصدانه
 ۲۵
 الف ①

$\cos(\sqrt{r}\pi + \frac{r\pi}{r}) = -\frac{\sqrt{r}}{r}$

$(-1) + (-\frac{\sqrt{r}}{r} \cdot -\frac{\sqrt{r}}{r}) = -1 + \frac{1}{r} = -\frac{1}{r}$



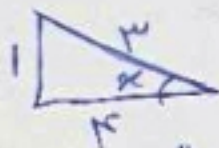
$\tan(\sqrt{r}\pi + \frac{d\pi}{r}) = -\frac{1}{\sqrt{r}}$

$\sin(\sqrt{r}\pi + \frac{d\pi}{r}) = -\frac{\sqrt{r}}{r}$

$\cos(\sqrt{r}\pi + \frac{r\pi}{r}) = -\frac{1}{r}$

$(-\frac{1}{\sqrt{r}} \cdot -\frac{\sqrt{r}}{r}) + (-\frac{1}{r}) = \frac{1}{r} - \frac{1}{r} = 0$

$\cot t = \frac{\text{مقابل}}{\text{جانب مجاور}} = \frac{r}{1}$

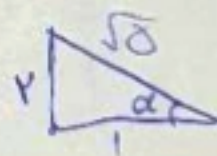


$\sqrt{r^2 + 1} = \sqrt{9} = 3$

$\frac{r \cos x - \sin x}{\cos x + \sin x} = \frac{r(\frac{r}{3}) - \frac{1}{3}}{\frac{r}{3} + \frac{1}{3}} = \frac{\frac{11}{3}}{\frac{r+1}{3}} = \frac{11}{r} \times \frac{r}{8} = \frac{11}{8}$

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$\frac{\sin \alpha}{\cos \alpha} = \frac{r \cos \alpha}{\cos \alpha} \Rightarrow \tan \alpha = r$



۳

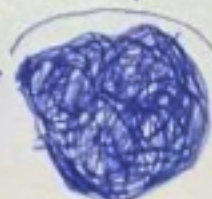
$\cos \alpha \Rightarrow \frac{1}{\sqrt{8}} \rightarrow \frac{1}{\sqrt{8}}$

$\sqrt{r^2 + 1} = \sqrt{8}$

$\cos \frac{r\pi}{r} = -\frac{\sqrt{r}}{r}$ $\sin \frac{r\pi}{r} = \frac{\sqrt{r}}{r}$

الف ②

$\cos(\alpha + \frac{11\pi}{r}) = \cos(\frac{r\pi}{r} + \alpha)$



$\cos^2 \alpha = \frac{91}{100}$

$\frac{11}{10} - \frac{r}{10} = \frac{r}{10}$

$(\frac{\sqrt{r}}{10})^2 + \cos^2 \alpha = 1$

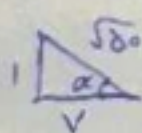
$\cos \alpha = -\frac{\sqrt{r}}{10}$

از روش طولانی است
 جواب درست = $\frac{11}{8}$

$\frac{1}{r} = \tan \alpha$ $\sin \alpha = \frac{\sqrt{r}}{10}$

$\sin(\frac{d\pi}{r} + \alpha)$

$\rightarrow -\frac{\sqrt{r}}{r} \times \frac{\sqrt{r}}{10} - \frac{\sqrt{r}}{r} \times \frac{\sqrt{r}}{10} = -\frac{16}{10} = -\frac{8}{5}$



$\cos \alpha = \frac{\sqrt{r}}{10}$

$\sin \frac{d\pi}{r} = -\frac{\sqrt{r}}{r}$
 $\cos \frac{d\pi}{r} = -\frac{\sqrt{r}}{r}$

ب ③

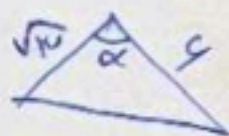
$$\begin{aligned} \sqrt{3} \sin^2 x + \cos^2 x &= \frac{1}{\sqrt{3}} \\ -\sin^2 x - \cos^2 x &= -1 \end{aligned}$$

$$\sin^2 x = \frac{1}{\sqrt{3}} \Rightarrow \boxed{\cos^2 x = \frac{\sqrt{3}}{\sqrt{3}}}$$

$$1 + \tan^2 x = \frac{1}{\cos^2 x}$$

$$\tan^2 x = \frac{\sqrt{3}}{\sqrt{3}} - 1 = \frac{1}{\sqrt{3}}$$

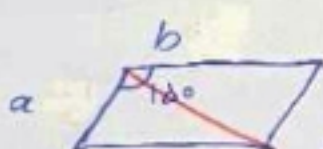
$$S_{\triangle} = \frac{1}{2} ab \sin C$$



$$S = \frac{1}{2} \times \sqrt{3} \times 1 \times \sin \alpha = \frac{1}{2} \Rightarrow \sin \alpha = \frac{1}{\sqrt{3}}$$

$$\frac{\sqrt{3}}{2} \times \frac{1}{\sqrt{3}} = \frac{1}{2} = \sin \alpha \Rightarrow \alpha = 30^\circ \text{ یا } 150^\circ$$

حداقل 30°
حداکثر 150°



$$S = \frac{1}{2} ab \sin 120^\circ = \frac{1}{2} ab = 1 \Rightarrow ab = 2$$

$$ab = 2$$

$$\frac{12}{12} = \frac{1}{1} \Rightarrow \frac{12}{12} = \frac{1}{1}$$

تنها عددی که نسبت و شرط گفته شده را دارند



$$L = (12 + 12) \times \frac{1}{2} = 12$$

$$\begin{aligned} & \left(\frac{1}{2} \times 12 \times 12 \times \sin A \right) - \left(\frac{1}{2} \times 12 \times 12 \times \sin A \right) = 12 \times 12 \sin A - (12 \sin A) = \\ & = \sin A (144 - 12) = 120 \Rightarrow \sin A = \frac{1}{12} \quad A = \arcsin \frac{1}{12} = 30^\circ \\ & \tan 30^\circ = \frac{1}{\sqrt{3}} \end{aligned}$$

$$\begin{aligned} \frac{BM}{AB} &= k \quad \frac{S_{BMN}}{S_{ABC}} = \frac{BM}{AB} \times \frac{BN}{BC} \\ &= k \times 0.16 = \frac{1}{10} \Rightarrow k = \frac{5}{8} \\ AM &= AB - BM = AB(1 - k) \\ \frac{BM}{AM} &= \frac{k}{1 - k} = \frac{5/8}{3/8} = \frac{5}{3} \end{aligned}$$

$$\begin{aligned} \frac{BN}{NC} &= \frac{1}{2} \quad BC = BN + NC \\ &= BN + 2BN = 3BN \\ \frac{BN}{BC} &= \frac{1}{3} = 0.33 \end{aligned}$$

آتر یسا ا قاصا

$$| \cos \alpha | \left(\frac{\sin \alpha + 1}{| \cos \alpha |} \right) = \left(\tan \alpha + \frac{1}{\sqrt{\cos \alpha}} \right) | \cos \alpha |$$

$| \cos \alpha |$

$$| \cos \alpha | = \cos \alpha$$

اگر $0 < \cos \alpha$

$$\sin \alpha + 1 = -\sin \alpha + 1$$

$$\sin \alpha = 0 \rightarrow \text{روی محور}$$

نه در ناحیه پس

اگر $0 > \cos \alpha$ (ناحیه دوم یا سوم)

$$| \cos \alpha | = -\cos \alpha$$

$$\sin \alpha + 1 = \sin \alpha + 1$$

که صحیح است

شرط دوم:

$$\cos \alpha - \frac{\sin \alpha}{\cos \alpha} = \frac{1}{\cot \alpha} = \frac{|\sin \alpha|}{\cos \alpha} \times \cos \alpha$$

$$-\sin \alpha = |\sin \alpha| \Rightarrow 0 > \sin \alpha$$

ناحیه ۳ یا ۴

پس α در ناحیه سوم است.