

الف) $\tan \frac{11\pi}{8} + \sin \frac{15\pi}{8} \times \cos \frac{13\pi}{8} \rightarrow (-1) + (-\frac{\sqrt{2}}{2}) \times (-\frac{\sqrt{2}}{2}) \rightarrow \boxed{-\frac{1}{2}}$ جواب

$11 \times 15 = 165$ درجه $\rightarrow 180 - 165 = 15$ درجه $\rightarrow \sin 15^\circ = \frac{1}{2}$ $\rightarrow \cos 15^\circ = \frac{\sqrt{3}}{2}$ $\rightarrow \tan 15^\circ = \frac{1}{\sqrt{3}}$

$\sin \frac{15\pi}{8} \rightarrow 12 \times 15 = 180$ درجه $\rightarrow \sin 180^\circ = 0$ $\rightarrow \cos 180^\circ = -1$ $\rightarrow \tan 180^\circ = 0$

ب) $\tan \frac{13\pi}{4} \times \sin \frac{11\pi}{4} + \cos \frac{1\pi}{4} \rightarrow -\frac{1}{\sqrt{3}} \times -\frac{\sqrt{3}}{2} + (\frac{1}{2}) \rightarrow \frac{1}{2} + \frac{1}{2} = 1$ جواب

$\tan \frac{13\pi}{4} \rightarrow 13 \times 180 = 2340$ درجه $\rightarrow 2340 - 5 \times 360 = 180$ درجه $\rightarrow \tan 180^\circ = 0$

$\sin \frac{11\pi}{4} \rightarrow 11 \times 180 = 1980$ درجه $\rightarrow 1980 - 5 \times 360 = 180$ درجه $\rightarrow \sin 180^\circ = 0$

$\cos \frac{1\pi}{4} \rightarrow 1 \times 180 = 180$ درجه $\rightarrow \cos 180^\circ = -1$

$\cot x = \frac{\cos x}{\sin x} = ?$

داده $\rightarrow \cot x = 2 \rightarrow \frac{\cos x}{\sin x} = 2 \rightarrow \cos x = 2 \sin x$ $\rightarrow \sin x = 1$ $\rightarrow \cos x = 2$ $\rightarrow \frac{2}{1} = 2$ جواب

پس $\rightarrow \sin x = \frac{1}{2} \rightarrow \frac{\cos x}{\frac{1}{2}} = 2 \rightarrow \cos x = 1$ $\rightarrow \frac{1}{1} = 1$ جواب

$\sin \alpha = \frac{r \cos \alpha}{\cos \alpha} = ? \rightarrow \frac{\cos \alpha}{\sin \alpha} = \frac{r \cos \alpha}{\sin \alpha} \rightarrow \cos \alpha = r \sin \alpha$

$\frac{x}{1} = r \rightarrow x = r \rightarrow \sqrt{r^2 + 1}$

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

الف) $\alpha \rightarrow \frac{r}{1} / \sin \alpha \rightarrow \frac{\sqrt{2}}{1} / \cos(\frac{11\pi}{8} + \alpha) = ?$

$11 \times 15 = 165$ درجه $\rightarrow 180 - 165 = 15$ درجه $\rightarrow \cos 15^\circ = \frac{\sqrt{3}}{2}$

$\sin(\frac{11\pi}{8} + \alpha) = \sin(\frac{11\pi}{8}) \cos \alpha + \cos(\frac{11\pi}{8}) \sin \alpha$

$\sin \frac{11\pi}{8} = -\frac{\sqrt{2}}{2}$ $\cos \frac{11\pi}{8} = -\frac{\sqrt{2}}{2}$

ب) $\alpha \rightarrow \frac{r}{1} / \sin \alpha \rightarrow \frac{\sqrt{2}}{1} / \cos(\frac{11\pi}{8} + \alpha) = ?$

$\sin(\frac{11\pi}{8} + \alpha) = \sin(\frac{11\pi}{8}) \cos \alpha + \cos(\frac{11\pi}{8}) \sin \alpha$

$\sin \frac{11\pi}{8} = -\frac{\sqrt{2}}{2}$ $\cos \frac{11\pi}{8} = -\frac{\sqrt{2}}{2}$

$r \sin^2 n + \cos^2 n = \frac{r}{r}$

$r(1 - \cos^2 n) + \cos^2 n = \frac{r}{r} \rightarrow r - r \cos^2 n + \cos^2 n = 1 \rightarrow \cos^2 n = \frac{1}{r}$

$\sin^2 n + \cos^2 n = 1 \rightarrow \sin^2 n = 1 - \frac{1}{r} \rightarrow \sin^2 n = \frac{r-1}{r}$

$\tan^2 n = ? \rightarrow \frac{\sin^2 n}{\cos^2 n} = \frac{\frac{r-1}{r}}{\frac{1}{r}} = r-1$ جواب

فرضیه

$$S = \frac{1}{2} a b \sin \alpha \rightarrow \Delta = \frac{1}{2} \times 4 \times \sqrt{2} \times \sin \alpha \rightarrow \sin \alpha = \frac{1}{\sqrt{2}} \rightarrow \left(\frac{1}{\sqrt{2}} \right) \rightarrow \frac{1}{\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} \rightarrow \frac{\sqrt{2}}{2}$$

$$\frac{d_{\max}}{d_{\min}} = \frac{11}{4} = 2.75 \leftarrow \text{زادینه ها 4، 11، 10، 12}$$

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$$S_{\Delta} \rightarrow \frac{1}{2} \times r \times k \times \sin 120 \rightarrow \frac{r \cdot k \cdot \frac{\sqrt{3}}{2}}{2} \rightarrow r \times \frac{r \cdot k}{2} \rightarrow (r \cdot k)$$

$$r \cdot k = \Delta \rightarrow k = 11$$

$$k = \sqrt{2}r$$

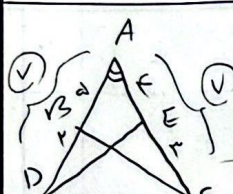
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جوابی

$$r \cdot k \Rightarrow (4\sqrt{2})$$

$$r \cdot k \Rightarrow (9\sqrt{2})$$

$$\frac{1}{2} \rightarrow r(4\sqrt{2} + 9\sqrt{2}) \rightarrow r \times 13\sqrt{2} \rightarrow (13\sqrt{2})$$



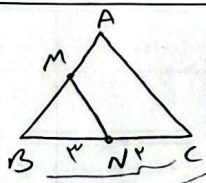
$$S_{\Delta ABC} - S_{\Delta ADE} = 1\sqrt{8} \rightarrow \left(\frac{1}{2} \times a \times v \times \sin \hat{A} \right) - \left(\frac{1}{2} \times \frac{a}{3} \times \frac{v}{3} \times \sin \hat{A} \right) = 1\sqrt{8}$$

$$\hat{A} = ?$$

$$\sin \hat{A} \left(\frac{11\sqrt{8}}{3} - \frac{1\sqrt{8}}{9} \right) = 1\sqrt{8} \rightarrow \sin \hat{A} = \frac{1}{3}$$

$$\sin \hat{A} = \frac{1}{3} \rightarrow \left(\frac{1}{3} : \frac{1}{3} \right) \rightarrow \tan \hat{A} = \frac{1}{\sqrt{8}}$$

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$$r_{BN} = r_{NC}$$

$$S_{\Delta ABC} = 4 S_{\Delta BMN} \rightarrow \left(\frac{1}{2} \times AB \times a \times \sin \hat{B} \right) = 4 \left(\frac{1}{2} \times r \times BM \times \sin \hat{B} \right)$$

$$AB \times a = 4 \times BM \times r \rightarrow AB = \frac{4}{a} BM$$

$$BM + AM = \frac{4}{a} BM$$

$$AM = \frac{3}{a} BM$$

$$\frac{BM}{AM} = ? \rightarrow \frac{BM}{\frac{3}{a} BM} = \left(\frac{a}{3} \right)$$

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$$\frac{1}{\sqrt{\cos \alpha}} - \tan \alpha = \frac{1 + \sin \alpha}{|\cos \alpha|} \rightarrow \frac{1}{|\cos \alpha|} - \frac{\sin \alpha}{\cos \alpha} = \frac{1}{|\cos \alpha|} + \frac{\sin \alpha}{|\cos \alpha|}$$

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

$$|\sin \alpha| = -\sin \alpha$$

$$\sin \alpha < 0$$

$$\sin \alpha < 0$$

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اینکه جواب