

دیا نا وطن خواہ

۱۔ الف

$$\tan\left(\frac{11\pi}{\pi}\right) = \tan\left(\frac{11\pi}{\pi}\right) = -1$$

$$\sin\left(\frac{15\pi}{\pi}\right) = \sin\left(\frac{15\pi}{\pi}\right) = -\frac{\sqrt{3}}{2}$$

$$\cos\left(\frac{13\pi}{\pi}\right) = \cos\left(\frac{13\pi}{\pi}\right) = -\frac{\sqrt{3}}{2}$$

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

$$\therefore \tan\left(\frac{17\pi}{4}\right) = \tan\left(\frac{17\pi}{4}\right) = -\frac{\sqrt{3}}{2}$$

$$\sin\left(\frac{11\pi}{\pi}\right) = \sin\left(\frac{11\pi}{\pi}\right) = -\frac{\sqrt{3}}{2}$$

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

$$\cos\left(\frac{10\pi}{\pi}\right) = \cos\left(\frac{10\pi}{\pi}\right) = -\frac{1}{2}$$

$$\frac{1}{2} + \left(-\frac{1}{2}\right) = 0$$

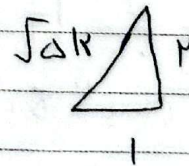
$$\frac{r \cos \theta - \sin \theta}{\cos \theta + \sin \theta} = \frac{r - \tan \theta}{1 + \tan \theta}$$

$$\tan \theta = \frac{1}{r}$$

$$\cot \theta = r$$

$$\rightarrow \frac{r - \left(\frac{1}{r}\right)}{1 + \frac{1}{r}} = \frac{\frac{11}{2} - \frac{1}{2}}{\frac{2}{2} + \frac{1}{2}} = \frac{11}{3}$$

$$\tan = \frac{\sin}{\cos} = \frac{r \cos}{\cos} = \frac{rk}{k} = r$$



$$\cos = \frac{\text{جوار}}{\text{وتر}} = \frac{1}{\sqrt{5}r} = \frac{1}{\sqrt{5}}$$

$$\sin = \frac{\text{مقابل}}{\text{وتر}} = \frac{rk}{\sqrt{5}k} = \frac{r}{\sqrt{5}}$$

$$\cot = \frac{1}{r}$$

$$\cos = -\sqrt{1 - \sin^2} = -\sqrt{1 - \frac{1}{100}} = -\frac{\sqrt{99}}{10} \quad (\text{الف. ك})$$

$$\cos\left(\frac{11\pi}{8} + \alpha\right) = \cos\left(\frac{3\pi}{8} + \alpha\right) \quad (18)$$

$$\rightarrow \cos \frac{3\pi}{8} \cos - \sin \frac{3\pi}{8} \sin \rightarrow$$

$$-\frac{\sqrt{2}}{2} \cos - \frac{\sqrt{2}}{2} \sin \rightarrow -\frac{\sqrt{2}}{2} (\cos + \sin)$$

$$\cos + \sin = \frac{-\sqrt{99} + \sqrt{2}}{10} \rightarrow \cos\left(\frac{11\pi}{8} + \alpha\right) =$$

$$\times \frac{\sqrt{2}}{2} (\sqrt{99} - \sqrt{2})$$

$$\sin = \frac{1}{\sqrt{100}} \quad \cos + \sin = \frac{1}{\sqrt{100}}$$

$$\cos \frac{\sqrt{2}}{\sqrt{100}} \quad \sin\left(\frac{11\pi}{8} + \alpha\right) = \sin\left(\frac{3\pi}{8} + \frac{\pi}{2} + \alpha\right) =$$

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

$$\sin\left(\frac{11\pi}{8} + \alpha\right) = -\frac{\sqrt{2}}{2} \times \frac{1}{\sqrt{100}} = -\frac{\sqrt{2}}{20} = -\frac{\sqrt{2}}{10}$$

$$\sin\left(\frac{11\pi}{8} + \alpha\right) = -\frac{\sqrt{2}}{10} \quad \checkmark$$

$$\sin^2 + \cos^2 = 1$$

$$(\sin^2 + \cos^2) = \sin^2 + (\sin^2 + \cos^2) \Rightarrow$$

$$\sin^2 + 1 = \frac{1}{10}$$

$$\sin^2 = \frac{1}{10}$$

$$\cos^2 = 1 - \sin^2 \rightarrow \frac{9}{10} \quad \tan^2 = \frac{1/10}{9/10} = \frac{1}{9}$$

$$\frac{1}{p} \times \sqrt{10} \times 4 \times \sin \alpha = \sqrt{10} \sin \alpha = \frac{4}{p} \quad \text{--- ۹}$$

$$\sin \alpha = \frac{4}{p} \times \frac{1}{\sqrt{10}} = \frac{\sqrt{10}}{p} \rightarrow \frac{4}{p} = \frac{\sqrt{10}}{p} \quad \text{--- ۱۰}$$

$$\frac{1}{p} = \frac{\sqrt{10}}{4} \quad \text{--- ۱۱}$$

$$b = \sqrt{10}$$

$$a = \sqrt{10}$$

$$\text{مثلاً} \rightarrow ab \sin \alpha = \sqrt{10} \times \sqrt{10} \times \frac{1}{p} = \frac{10}{p} \quad \text{--- ۱۲}$$

$$\sqrt{10} = \frac{10}{p}$$

$$p = 10 \rightarrow p = \sqrt{10}$$

$$p = p(a+b) = \sqrt{10}(\sqrt{10} + \sqrt{10}) = 2\sqrt{10} \quad \text{--- ۱۳}$$

$$\frac{1}{p} \times \sqrt{10} = \frac{\sqrt{10}}{2\sqrt{10}} = \frac{1}{2} \quad \text{--- ۱۴}$$

$$AD = \omega + \sqrt{10} = \sqrt{10}$$

$$AE = \sqrt{10}$$

$$AC = \sqrt{10} + \sqrt{10} = \sqrt{10}$$

$$AC = \sqrt{10}$$

$$AD = \sqrt{10}$$

$$AB = \omega$$

$$S = \frac{1}{2} AB \cdot AC \cdot \sin A \Rightarrow \frac{1}{2} \times \omega \times \sqrt{10} \times \sin \alpha = \frac{1}{2} \times \omega \times \sqrt{10} \times \sin A \quad \text{--- ۱۵}$$

$$BN = \sqrt{10}$$

$$NC = \sqrt{10} \quad BN = \sqrt{10} \quad \text{--- ۱۶}$$

$$\frac{BM}{BA} = \frac{BN}{BC}$$

$$BC = \sqrt{10} + \sqrt{10} = \sqrt{10} \quad \text{--- ۱۷}$$

$$\frac{BM}{BA} = \frac{1}{\sqrt{10}} \quad \frac{AM}{BA} = \frac{1}{\sqrt{10}} \rightarrow \frac{BM}{AM} = \frac{\frac{1}{\sqrt{10}}}{\frac{1}{\sqrt{10}}} = \frac{1}{1} \quad \text{--- ۱۸}$$

$$\sqrt{\cos^2} = |\cos|$$

-10

$$\frac{1}{|\cos|} = \tan \Rightarrow \frac{1 + \sin}{|\cos|}$$

$$\frac{|\sin|}{\cos} = \frac{-1}{\cos} = -\tan \quad \tan = \frac{\sin}{\cos}$$

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

$$\frac{\sin}{\cos} = \frac{-\sin}{|\cos|} \quad \frac{-1}{\cos} = \frac{-1}{|\cos|}$$

$$\sin = 0$$

$$\sin < 0$$

$$\sin = 0 \quad \alpha$$

$$\sin < 0$$

$$\cos < 0$$

$$\tan > 0$$

$$\cot > 0$$

مربع

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$$\cos^2 \alpha = 1 - \sin^2 \alpha \rightarrow \cos \alpha = 1 - \left(\frac{\sqrt{r}}{1}\right)^2 = 1 - \frac{r}{1} = \frac{1-r}{1} \quad \frac{r \cos \alpha}{\cos \alpha < 0} \rightarrow \cos \alpha = -\frac{\sqrt{r}}{1}$$

$$\cos\left(\frac{11\pi}{4} + \alpha\right) = \cos\left(\pi - \frac{\pi}{4} + \alpha\right) = -\cos\left(\alpha - \frac{\pi}{4}\right)$$

$$-\left(\frac{\sqrt{r}}{1} \times \cos \alpha + \frac{\sqrt{r}}{1} \sin \alpha\right) = -\frac{\sqrt{r}}{1} \left(-\frac{\sqrt{r}}{1} + \frac{\sqrt{r}}{1}\right) = -\frac{1}{\sqrt{r}} \times -\frac{\sqrt{r}}{1} = \boxed{\frac{r}{1}}$$

$$\frac{S_{ABC}}{S_{BMN}} = \frac{\frac{1}{r} \times AB \times \omega \times \sin \hat{B}}{\frac{1}{r} \times BM \times \epsilon \times \sin \hat{B}} = \mu \rightarrow \frac{AB}{BM} = \frac{\omega}{\epsilon}$$

$$\frac{BM}{BM + AM} = \frac{\omega}{\epsilon} \rightarrow BM = \omega \epsilon \rightarrow \frac{BM}{AM} = \boxed{\frac{\omega}{\epsilon}}$$

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$$\begin{aligned} S_{ABC} &= \frac{1}{r} \times v \times \omega \times \sin \hat{A} \\ S_{ADE} &= \frac{1}{r} \times v \times \epsilon \times \sin \hat{A} \end{aligned} \rightarrow \frac{1}{r} \times v \times \sin \hat{A} (\omega - \epsilon) = \frac{v}{\epsilon}$$

$$\rightarrow \hat{A} = \frac{\pi}{4} \rightarrow \tan \frac{\pi}{4} = \boxed{\frac{\sqrt{2}}{2}}$$