

$$\frac{1}{\sqrt{\cos^2 \alpha}} - \frac{1}{\cot \alpha} = \frac{1 - \sin \alpha}{|\cos \alpha|} \quad \text{IV, V \checkmark} \quad \text{مقابلہ مخرجاتی} \quad (1)$$

$$\longrightarrow \frac{1}{|\cos \alpha|} - \frac{\sin \alpha}{\cos \alpha} = \frac{1 - \sin \alpha}{|\cos \alpha|} \longrightarrow \cos \alpha \geq 0 \quad (2)$$

$$\cot \alpha = \frac{\cos \alpha}{\sin \alpha} = \frac{\cos \alpha}{\sqrt{1 - \cos^2 \alpha}} \longrightarrow \sin \alpha \geq 0 \quad \text{ملاحظہ اولیٰ} \checkmark$$



$$-\frac{\pi}{2} < \alpha < -\frac{\pi}{4} \longrightarrow -\frac{\pi}{4} < \alpha < \frac{\pi}{4} \quad (2)$$

$$\frac{1}{r} < \sin \alpha \leq 1 \longrightarrow \frac{1}{r} < \frac{m-1}{r} \leq 1$$

$$\longrightarrow r < m-1 < r \longrightarrow r < m < \Delta \longrightarrow m \in (r, \Delta]$$

$$-\frac{1}{r} < \sin \alpha \leq 1 \longrightarrow -\frac{1}{r} < \frac{m-1}{r} < 1 \longrightarrow m \in (-1, \Delta]$$

$$\tan \alpha + \cot \alpha = \frac{1}{\sin \alpha \cos \alpha} = \frac{r}{\sin \alpha} = -r \quad (2) \quad (r)$$

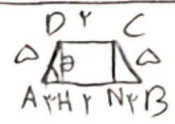
$$\longrightarrow \sin \alpha = -\frac{r}{r} \quad \sin^2 \alpha + \cos^2 \alpha = (\sin \alpha + \cos \alpha) \left(1 - \frac{\sin \alpha}{r}\right)$$

$$\longrightarrow (\sin \alpha + \cos \alpha)^2 = 1 + \sin^2 \alpha = 1 - \frac{r}{r} = \frac{1}{r}$$

$$\longrightarrow \sin \alpha + \cos \alpha = \pm \sqrt{\frac{1}{r}} \quad \frac{\pi}{2} < \alpha < \pi \longrightarrow = -\sqrt{\frac{1}{r}}$$

$$\longrightarrow \sin^2 \alpha + \cos^2 \alpha = \left(-\sqrt{\frac{1}{r}}\right) \left(1 + \frac{r}{r}\right) = -\frac{r}{r} \sqrt{\frac{1}{r}}$$

$$\longrightarrow \frac{1}{\sin^2 \alpha + \cos^2 \alpha} = -\frac{r}{r} \times \frac{1}{\sqrt{\frac{1}{r}}} \sqrt{r} = -\frac{r \sqrt{r}}{r} \checkmark$$



$$\cos \theta = \frac{AH}{\Delta} = \frac{r}{\Delta} \longrightarrow AH = r = BN \quad (2) \quad (r)$$

$$\longrightarrow AB = AH + BN + HN = r + r + r = \Delta$$

$$\longrightarrow S = \frac{(DC + AB) \times DH}{2} = \frac{\Delta + r}{2} \times \Delta \sin \theta$$

$$\longrightarrow = \Delta \times \Delta \times \sin \theta = r_0 \checkmark$$

$$\tan(170^\circ) \tan(-170^\circ) - \sin(1090^\circ) \cos(170^\circ) \quad (2) \quad (2)$$

$$\longrightarrow = (-\cot(10^\circ))(\tan(10^\circ)) - (\sin(10^\circ))(-\sin(10^\circ))$$

$$= \sin^2(10^\circ) - 1 = -\cos^2(10^\circ) = k \cos^2(10^\circ)$$

$$\longrightarrow k = -1 \checkmark$$

$$A = \sqrt{3} \cos(210^\circ) \sin(225^\circ) - \sqrt{2} \sin(135^\circ) \cos(120^\circ) \quad (2) \quad (4)$$

$$\rightarrow = \sqrt{3} \times \left(-\frac{\sqrt{3}}{2}\right) \times \left(-\cos 225^\circ\right) - \sqrt{2} \times \frac{\sqrt{2}}{2} \times \left(-\cos 240^\circ\right)$$

$$\rightarrow = \frac{3}{2} \cos 225^\circ + \cos 240^\circ = \frac{\Delta}{2} \cos 225^\circ \rightarrow \boxed{\frac{\Delta}{2}} \checkmark$$

$$f(n) = 14 \cos^2(3n) \cos^2(4n) \cos^2(11n) \cos^2(12n) \quad (1, 2) \quad (V)$$

$$\rightarrow f\left(\frac{\pi}{12}\right) = 14 \times \cos^2\left(\frac{\pi}{4}\right) \times \cos^2\left(\frac{\pi}{3}\right) \times \cos^2\left(\frac{\pi}{4}\right) \times \cos^2\left(\frac{\pi}{3}\right)$$

$$\cdot \cos^2 \frac{\pi}{12} = \frac{\cos \frac{\pi}{6} + 1}{2} \rightarrow 14 \times \left(\frac{\sqrt{3}+1}{2}\right) \left(\frac{3}{4}\right) \left(\frac{1}{2}\right) \left(\frac{1}{2}\right)$$

$$\rightarrow = \frac{3\sqrt{3}+9}{14}$$

$$\pi < n < \frac{3\pi}{2} \quad \frac{1-\sin n}{1+\sin n} = f \quad (2) \quad (\wedge)$$

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

$$\rightarrow \Delta \sin n = -r \rightarrow \sin n = -\frac{r}{\Delta} \rightarrow \cos n = -\frac{r}{\Delta}$$

$$\rightarrow \tan n = \frac{r}{r} = \frac{r \tan \frac{n}{r}}{1 - \tan^2 \frac{n}{r}} \xrightarrow{\tan \frac{n}{r} = t} r - r t^2 = 1 t$$

$$\rightarrow r t^2 + 1 t - r = 0 \rightarrow t = \frac{-1 \pm \sqrt{1+4r^2}}{2r} \quad \left\{ \begin{array}{l} t = \frac{1}{r} \\ t = -r \end{array} \right.$$

$$\frac{\pi}{r} < \frac{n}{r} < \frac{3\pi}{r} \rightarrow \tan \frac{n}{r} = \boxed{-r} \checkmark$$

$$\frac{\sin \theta}{1-\cos \theta} + \frac{1+\cos \theta}{\sin \theta} \xrightarrow{\text{این دو برابرند}} = \frac{r \sin \theta}{1-\cos \theta} \quad (2) \quad (9)$$

$$\cot \frac{\theta}{r} = \frac{\cos \frac{\theta}{r}}{\sin \frac{\theta}{r}} \xrightarrow{\text{صورت و مخرج ضرب در } \cos \frac{\theta}{r}} \frac{\cos^2 \frac{\theta}{r}}{\sin \frac{\theta}{r} \cos \frac{\theta}{r}} = \frac{\cos \theta + 1}{\sin \theta} = \frac{\cos \theta + 1}{\sin \theta} = \frac{\sin \theta}{1-\cos \theta}$$

$$\rightarrow \boxed{k=r} \checkmark$$

$$\sin \alpha = \frac{\sqrt{r}}{10} \xrightarrow{r=100} \cos \alpha = -\frac{\sqrt{100}}{10} \rightarrow \sin 2\alpha = 2\lambda \frac{-\sqrt{100}}{100} = -0,2\lambda \quad (2) \quad (10)$$

$$\frac{11\pi}{r} + \alpha = \frac{17\pi}{r} + \alpha = t \rightarrow 2t = \frac{17\pi}{r} + 2\alpha \rightarrow \cos 2t = \sin 2\alpha = -0,2\lambda$$

$$\rightarrow \cos 2t = -0,2\lambda = \cos^2 t - \sin^2 t = r \cos^2 t - 1 \rightarrow \cos^2 t = 0,14$$

$$\rightarrow \cos t = \pm 0,4 \quad \cos t = \boxed{0,4} \checkmark$$
