

$$\frac{\sin(\frac{\pi}{4} + \alpha) - \sin(\alpha - \pi)}{|\tan^2 \alpha - 1|} = \frac{\cos \alpha - (-\sin \alpha)}{|\tan^2 \alpha - 1|} = \frac{\cos \alpha + \sin \alpha}{|\tan^2 \alpha - 1|} \xrightarrow{\text{مقسوم علیه ضرب}} \frac{\frac{1}{\sqrt{2}} + (-\frac{\sqrt{2}}{2})}{\frac{1}{2} - 1} = \frac{1 - \sqrt{2}}{-\frac{1}{2}} = \frac{2(1 - \sqrt{2})}{1}$$

جواب

$$\cos \alpha = \frac{1}{\sqrt{2}} \Rightarrow \sin^2 \alpha + \cos^2 \alpha = 1 \Rightarrow \sin^2 \alpha = 1 - \frac{1}{2} = \frac{1}{2} \Rightarrow \sin \alpha = \pm \frac{\sqrt{2}}{2}$$

$$\Rightarrow \tan \alpha = -\frac{\sqrt{2}}{1} \times \frac{1}{\sqrt{2}} = -1 \Rightarrow \tan^2 \alpha = 1$$

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$$\sin^2 \alpha + \cos^2 \alpha = 1 \Rightarrow (r \cos \alpha)^2 + \cos^2 \alpha = 1 \Rightarrow \cos^2 \alpha = \frac{1}{5} \Rightarrow \cos \alpha = \pm \frac{1}{\sqrt{5}} \Rightarrow \cos \alpha = -\frac{\sqrt{5}}{5}$$

$$\star \sin \alpha = r \cos \alpha$$

جواب

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$$r m u + (m^2 - 1) u = r, \quad m = \tan 45^\circ \Rightarrow m = \sqrt{3} \Rightarrow \frac{u}{\sqrt{3}} + (\sqrt{3} - 1)u = r \Rightarrow \frac{-r}{m^2 - 1} = \sqrt{3} \Rightarrow$$

$$\sqrt{3} m^2 - \sqrt{3} + r m = 0 \xrightarrow{\times \sqrt{3}} m^2 - 3 + r m = 0 \Rightarrow (m + r)(m - 1) = 0 \Rightarrow m = -\frac{r}{\sqrt{3}} = -\sqrt{3}$$

$$|\alpha - \beta| = \left| \frac{\sqrt{3}}{r} - (-\sqrt{3}) \right| = \left| \frac{\sqrt{3} + r\sqrt{3}}{r} \right| = \frac{\sqrt{3}(1+r)}{r}$$

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$$-\frac{\pi}{2} < u < \frac{\pi}{2}, \quad \tan\left(\frac{\pi}{2} - u\right)$$

$$-\frac{\pi}{2} < u < \frac{\pi}{2} \xrightarrow{x-1} \frac{\pi}{2} - u > -\frac{\pi}{2} \xrightarrow{+\frac{\pi}{2}} \frac{\pi}{2} - u + \frac{\pi}{2} > 0$$



tan α > 0
 $\hookrightarrow \tan\left(\frac{\pi}{2} - u\right) > 0$
 $m = \frac{1-m}{r+m} > 0$
 $m = -r$

$$\frac{m(r-1)}{2} \leq -\frac{r}{2} \Rightarrow m \leq -1$$

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$$\tan(45^\circ) \cos(45^\circ) + \tan(45^\circ) \sin(45^\circ) = ? \Rightarrow \frac{1}{\sqrt{2}} \times \frac{1}{\sqrt{2}} + \left(-\frac{1}{\sqrt{2}} \times \frac{1}{\sqrt{2}}\right) = 0$$

$$\tan(45^\circ) = \tan(45^\circ) \Rightarrow \frac{1}{\sqrt{2}}$$

$$\sin(45^\circ) = \sin(45^\circ) \Rightarrow \frac{1}{\sqrt{2}}$$

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