

نام و نام خانوادگی: آرین شریانی فر. ۲۰ پاسنامه تشریحی تکلیف شماره ۱۸... کلاس (هم سرانه) B

الف) $\tan \frac{11\pi}{4} + \sin \frac{15\pi}{4} \cos \frac{13\pi}{4} = -1 + \left(-\frac{\sqrt{2}}{2} \times -\frac{\sqrt{2}}{2} \right) = \left(-\frac{1}{2} \right)$
 $\frac{11\pi}{4} = 2\pi + \frac{3\pi}{4} \rightarrow \tan \left(\frac{11\pi}{4} \right) = \tan \left(\frac{3\pi}{4} \right) = -1$ / $\frac{13\pi}{4} = 2\pi + \frac{5\pi}{4} \rightarrow \cos \frac{13\pi}{4} = \cos \frac{5\pi}{4} = -\frac{\sqrt{2}}{2}$
 $\frac{15\pi}{4} = 2\pi + \frac{7\pi}{4} \rightarrow \sin \frac{15\pi}{4} = \sin \frac{7\pi}{4} = -\frac{\sqrt{2}}{2}$

ب) $\tan \frac{14\pi}{4} \sin \frac{11\pi}{4} + \cos \frac{10\pi}{4} = \left(-\frac{\sqrt{2}}{2} \times -\frac{\sqrt{2}}{2} \right) - \frac{1}{2} = 0$
 $\tan \frac{14\pi}{4} = \tan \frac{7\pi}{2} = -\frac{\sqrt{2}}{2}$ / $\sin \frac{11\pi}{4} = \sin \frac{5\pi}{4} = -\frac{\sqrt{2}}{2}$
 $\cos \frac{10\pi}{4} = \cos \frac{5\pi}{2} = -\frac{1}{2}$

$\cot n = r$
 $\frac{r \cos n - \sin n}{\cos n + \sin n} = \frac{r(\sin n) - \sin n}{r \sin n + \sin n} = \frac{11 \sin n}{5 \sin n} = \left(\frac{11}{5} \right)$
 $\frac{\cos n}{\sin n} = r \rightarrow \cos n = r \sin n$

$\sin \alpha = r \cos \alpha$
 $\sin^2 \alpha + \cos^2 \alpha = 1 \rightarrow (r \cos \alpha)^2 + \cos^2 \alpha = 1 \rightarrow 5 \cos^2 \alpha = 1 \rightarrow \cos^2 \alpha = \frac{1}{5}$
 $\cos \alpha = \pm \frac{1}{\sqrt{5}}$
 $\cos = -\frac{1}{\sqrt{5}}$ (چون در ربع سوم است)

$\cos \left(\frac{11\pi}{4} + \alpha \right) = \cos \left(\frac{3\pi}{4} + \alpha \right) = \cos \frac{3\pi}{4} \cos \alpha - \sin \frac{3\pi}{4} \sin \alpha = -\frac{\sqrt{2}}{2} \cos \alpha - \frac{\sqrt{2}}{2} \sin \alpha = -\frac{\sqrt{2}}{2} (\cos \alpha + \sin \alpha)$
 $= -\frac{\sqrt{2}}{2} \left(-\frac{1}{\sqrt{5}} + \frac{2}{\sqrt{5}} \right) = -\frac{\sqrt{2}}{2} \times \frac{1}{\sqrt{5}} = -\frac{\sqrt{2}}{2\sqrt{5}} = \left(-\frac{\sqrt{10}}{10} \right)$

ج) $\tan \alpha = \frac{1}{2}$ و در ربع اول است: $\sin \left(\frac{13\pi}{4} + \alpha \right) = \sin \left(\frac{5\pi}{4} + \alpha \right) = \sin \frac{5\pi}{4} \cos \alpha + \cos \frac{5\pi}{4} \sin \alpha = -\frac{\sqrt{2}}{2} \cos \alpha + \left(-\frac{\sqrt{2}}{2} \right) \sin \alpha = -\frac{\sqrt{2}}{2} (\cos \alpha + \sin \alpha) = -\frac{\sqrt{2}}{2} \times \frac{3}{\sqrt{5}} = \left(-\frac{3\sqrt{10}}{10} \right)$

$r \sin^2 n + \cos^2 n = \frac{r}{3}$ / $\sin^2 n + \cos^2 n = 1$
 $\sin^2 n + \sin^2 n + \cos^2 n = \frac{r}{3} \rightarrow \sin^2 n = \frac{1}{3}$

$\tan^2 n = \frac{\sin^2 n}{\cos^2 n} = \frac{\frac{1}{3}}{\frac{2}{3}} = \left(\frac{1}{2} \right)$
 $\cos^2 n = \frac{2}{3}$ / $\sin^2 n + \cos^2 n = 1$

$\sin^2 \alpha + \cos^2 \alpha = 1 \rightarrow \sin^2 \alpha + 9 \sin^2 \alpha = 1$ / $\sin \alpha + \cos \alpha = \frac{10\sqrt{2}}{50}$
 $10 \sin^2 \alpha = 1$
 $\sin^2 \alpha = \frac{1}{10} \rightarrow \sin \alpha = \pm \frac{1}{\sqrt{10}} = \frac{5\sqrt{2}}{50} \rightarrow \cos \alpha = \frac{35\sqrt{2}}{50}$

