۱۹,۷۵

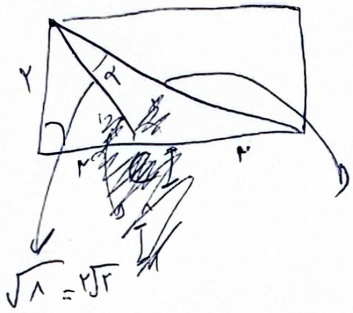
نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ۲۷ کلاس ..... زمان .....

۱

$S = \frac{1}{2} ab\sin C \Rightarrow \frac{9}{2} = \sqrt{3} \times 3\sqrt{3} \times \sin\alpha \rightarrow \sin\alpha = \frac{\sqrt{3}}{2}$

$0 < \alpha < 180 \rightarrow \alpha_1 = 60^\circ,\ \alpha_2 = 120^\circ$ (۱/۲ نمره) ✓

۲



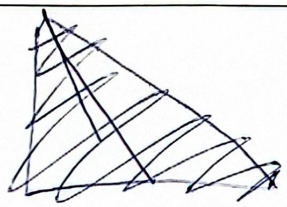
$\cot\alpha = \sqrt{10-1} = 3$

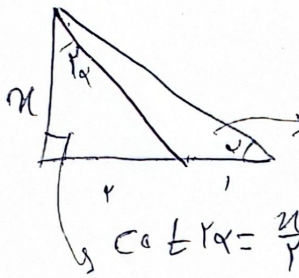
$\sqrt{10} \times \sin\alpha = 1 \rightarrow \sin\alpha = \frac{\sqrt{10}}{10}$

$\sqrt{10} = 2\sqrt{5}$

$\sqrt{8} = 2\sqrt{2}$

۳





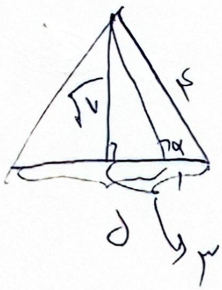
$\cot 2\alpha = \frac{3}{n} = 2$

$\cot 2\alpha = \frac{1-\cot^2\alpha}{2\cot\alpha}$

$\frac{n}{2} = \frac{1-\frac{9}{n^2}}{\frac{9}{n}} \rightarrow 2n^2 = n^2 - 9 \rightarrow n = \frac{3}{2}$

۱,۷۵

۴



$\tan(\pi-\alpha) = \frac{\sqrt{7}}{2} \Rightarrow \tan\alpha = -\frac{\sqrt{7}}{2}$ ✓

۵

$2\tan^2\alpha + 1 = \frac{4}{\frac{2}{3}} \rightarrow \frac{2}{3}\tan^2\alpha = \frac{1}{3}$

$\frac{4}{3}(1+\tan^2\alpha)$

$\tan^2\alpha = \frac{1}{2}$ ✓

۶ (۲)

$\sin^2\alpha = 1-\cos^2\alpha \to \sin^4\alpha = (1-\cos^2\alpha)^2$

$\hookrightarrow \frac{\sin^2\alpha + 4\cos^2\alpha}{1+\cos^2\alpha} - \frac{\cos^2\alpha + 2\sin^2\alpha}{1+\sin^2\alpha} = \cos^2\alpha + 1 - \sin^2\alpha - 1$

$= \cos 2\alpha$ ✓

۷ (۲)

$\sin\left(\frac{\pi}{2}+\alpha\right)\cos\left(\alpha+\frac{\pi}{2}\right) - \tan\left(\alpha - \frac{3\pi}{2}\right)$

$-\cos\alpha\sin\alpha + \cot\alpha$

$\frac{-12}{25} + \frac{3}{4} = 0/27$ ✓

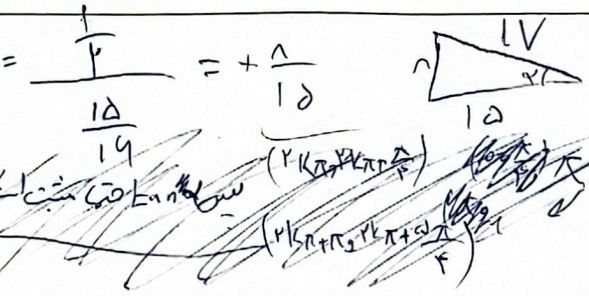
۸ (۲)

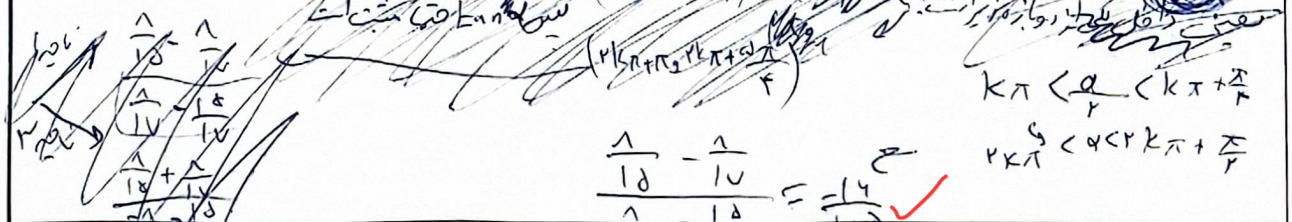
$2\cos\frac{\pi}{3} + \sqrt{2}\left(\sin\frac{\pi}{12} - \cos\frac{\pi}{12}\right) = \frac{3}{2} - 1 = \frac{1}{2}$ ✓

$-2\sin\frac{\pi}{4}$

۹ (۲)

$\tan\alpha = \frac{\frac{1}{4}}{\frac{15}{16}} = +\frac{8}{15}$





$k\pi < \frac{\alpha}{2} < k\pi + \frac{\pi}{4}$

$2k\pi < \alpha < 2k\pi + \frac{\pi}{2}$

$\frac{\frac{8}{15} - \frac{8}{17}}{\frac{8}{17}\cdot\frac{15}{17}} = \frac{16}{120}$ ✓

۱۰ (۲)

$2\sin\alpha < 2\sin\alpha\cos\alpha \to \sin\alpha > 0$ (غیرممکن) $\to \cos\alpha > \frac{1}{2}$

$\frac{\cos\alpha}{\sin^2\alpha} > 0 \to \cos\alpha > 0$

$-\frac{\pi}{3} < \alpha < \frac{\pi}{3}$ ✓