

نام و نام خانوادگی کلاس شماره ۱۱ پاسخنامه تشریحی

$$\text{الف) } \tan \frac{11\pi}{4} + \sin \frac{15\pi}{4} \cos \frac{13\pi}{4} = -1 + \frac{1}{\sqrt{2}} = -\frac{1}{\sqrt{2}}$$

$$\text{ب) } \tan \frac{17\pi}{4} \sin \frac{11\pi}{4} + \cos \frac{10\pi}{4} = \frac{1}{\sqrt{2}} - \frac{1}{\sqrt{2}} = 0$$

$$\cot x = f \quad \frac{\cos x}{\sin x} = f \rightarrow \cos x = f \sin x$$

$$\frac{\cos x - \sin x}{\cos x + \sin x} = \frac{15 \sin x - \sin x}{f \sin x + \sin x} = \frac{14}{f+1}$$

$$\sin x = 2 \cos x \quad \sin^2 x \cos^2 x < 0$$

$$\tan x = \frac{1}{2} \rightarrow \sqrt{2^2 + 1^2} = \sqrt{5} \quad \cos x = -\frac{1}{\sqrt{5}}$$

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

$$1 - \frac{1}{\sqrt{2}} = \frac{49}{40} \rightarrow -\frac{\sqrt{2}}{40} = \cos \alpha$$

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

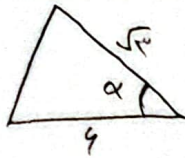
$$\tan \alpha = \frac{\sin \alpha}{\cos \alpha} = \frac{1}{\sqrt{2}} \rightarrow \sqrt{2^2 + 1^2} = \sqrt{5} = 5\sqrt{5} \rightarrow \sin \alpha = \frac{1}{5\sqrt{5}}$$

$$\cos^2 x = \frac{5}{12} - 2 \sin^2 x \quad \frac{5}{12} - 2 \sin^2 x = 1 - \sin^2 x$$

$$\cos^2 x = 1 - \sin^2 x \quad \sin^2 x = \frac{1}{12}$$

$$\frac{5}{12} - \frac{1}{12} = \frac{4}{12} = \cos^2 x$$

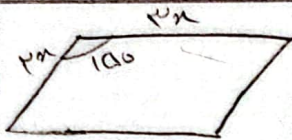
$$\tan^2 x = \frac{\sin^2 x}{\cos^2 x} = \frac{\frac{1}{12}}{\frac{4}{12}} = \frac{1}{4}$$



$$\frac{1}{5} \times \sqrt{5} \times \frac{4}{5} \times \sin \alpha = \frac{40}{10} \rightarrow \sin \alpha = \frac{\frac{40}{10}}{\frac{\sqrt{5}}{5}} = \frac{40}{10} \times \frac{5}{\sqrt{5}} = \frac{20}{\sqrt{5}} = \frac{4\sqrt{5}}{1}$$

$$\alpha < \frac{40}{100}$$

$$\frac{100}{40} = \frac{5}{2} \text{ براس } \alpha$$



$$P = 2 \times \frac{1}{2} \times 100 \times 4 = 400$$

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$$S_{ABC} - S_{ADE} \rightarrow \left(\frac{1}{2} \times AB \times AC \times \sin A \right) - \left(\frac{1}{2} \times AE \times AD \times \sin A \right) = \sin A (AB \times AC - AE \times AD) = 100$$

$$\sin A = \frac{100}{AB \times AC - AE \times AD} = \frac{1}{4} \rightarrow \cos A = \frac{3}{4} \quad \tan A = \frac{\sin A}{\cos A} = \frac{1/4}{3/4} = \frac{1}{3}$$

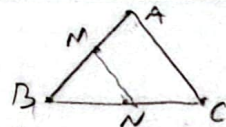
$$2BN = 3NC \rightarrow \frac{BN}{NC} = \frac{3}{2}, \frac{BN}{BC} = \frac{3}{5}$$

$$S_{ABC} = \frac{1}{2} \times AB \times BC \times \sin B$$

$$S_{BMN} = \frac{1}{2} \times BM \times BN \times \sin B$$

$$\frac{S_{BMN}}{S_{ABC}} = \frac{BM \times BN}{AB \times BC} \rightarrow \frac{1}{5} = \frac{BM}{AB} \times \frac{3}{5} \rightarrow \frac{BM}{AB} = \frac{1}{3}$$

$$AM = AB - \frac{BM}{3} = \frac{2}{3} AB \rightarrow \frac{BM}{AM} = \frac{1}{2} = \frac{1}{2}$$



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

$$\frac{|\sin \alpha|}{\cos \alpha} = \tan \alpha$$

$$\sin \alpha < 0$$

$$\sin \alpha, \cos \alpha < 0 \rightarrow \text{در ربع دوم}$$