

$$\begin{aligned} \text{الف) } \tan \frac{11\pi}{4} + \sin \frac{15\pi}{4} \cos \frac{13\pi}{4} &= \tan \left(\frac{11\pi}{4} + \frac{\pi}{4} \right) + \sin \left(\frac{15\pi}{4} + \frac{\pi}{4} \right) \cos \left(\frac{13\pi}{4} + \frac{\pi}{4} \right) \\ &= \tan 15^\circ + \sin 135^\circ \cos 135^\circ = -1 + \left(-\frac{\sqrt{2}}{2} \right) \times \left(-\frac{\sqrt{2}}{2} \right) = -1 + \frac{1}{2} = -\frac{1}{2} \\ \text{ب) } \tan \frac{11\pi}{4} > \sin \frac{11\pi}{4} + \cos \frac{10\pi}{4} &= \tan \left(\frac{11\pi}{4} + \frac{\pi}{4} \right) \sin \left(\frac{11\pi}{4} + \frac{\pi}{4} \right) + \cos \left(\frac{11\pi}{4} + \frac{\pi}{4} \right) \\ &= -\frac{1}{\sqrt{2}} \times -\frac{\sqrt{2}}{2} + -\frac{1}{2} = 0 \end{aligned}$$

$$\begin{aligned} \cot x = \frac{\cos x}{\sin x} \Rightarrow \frac{\cos x - \sin x}{\cos x + \sin x} = 1 \quad \cot x = \frac{\cos x}{\sin x} \Rightarrow \frac{\cos x}{\sin x} = \cos x \\ \frac{\cos x - \sin x}{\cos x + \sin x} = \frac{\cos x}{\sin x} = \frac{1}{2} \end{aligned}$$

$$\begin{aligned} \sin d = \frac{r}{R} \quad \cos d = \frac{1}{2} \Rightarrow \sin d = \frac{\sqrt{3}}{2} \quad \cos d = \frac{1}{2} \Rightarrow \sin d = \frac{\sqrt{3}}{2} \\ \cos^2 d = 1 - \sin^2 d = 1 - \frac{3}{4} = \frac{1}{4} \Rightarrow \cos d = \frac{1}{2} \\ \cos d = \frac{1}{2} \Rightarrow \sin d = \frac{\sqrt{3}}{2} \end{aligned}$$

$$\begin{aligned} \text{الف) } \sin d = \frac{\sqrt{2}}{10} \quad \cos \left(\frac{11\pi}{4} + d \right) = 1 \Rightarrow \sin d = \frac{\sqrt{2}}{10} \\ \cos \frac{11\pi}{4} \cos d - \sin \frac{11\pi}{4} \sin d = 1 \\ \cos \left(\frac{11\pi}{4} + \frac{\pi}{4} \right) = -\frac{\sqrt{2}}{2} \times \frac{\sqrt{2}}{10} - \left(-\frac{\sqrt{2}}{2} \right) \times \frac{\sqrt{2}}{10} = -\frac{2}{20} + \frac{2}{20} = 0 \\ \sin d = \frac{\sqrt{2}}{10} \Rightarrow \cos d = \frac{3}{10} \\ \sin \frac{11\pi}{4} \cos d + \sin d \cos \frac{11\pi}{4} = -\frac{\sqrt{2}}{2} \times \frac{3}{10} + \frac{\sqrt{2}}{10} \times \left(-\frac{\sqrt{2}}{2} \right) = -\frac{3\sqrt{2}}{20} - \frac{2}{20} = -\frac{3\sqrt{2} + 2}{20} \\ \tan d = \frac{\sin d}{\cos d} = \frac{\frac{\sqrt{2}}{10}}{\frac{3}{10}} = \frac{\sqrt{2}}{3} \\ \sin d = \frac{\sqrt{2}}{10} \Rightarrow \cos d = \frac{3}{10} \Rightarrow \tan d = \frac{\sqrt{2}}{3} \end{aligned}$$

$$S_{ABC} = 415 \quad \text{بیشترین مقدار} = 120^\circ \quad \frac{120}{40} = 3$$

$$\frac{1}{2} \times 4 \times \sqrt{3} \times \sin d \quad \text{مقدار} \quad \text{مقدار} \quad \text{مقدار} = 90^\circ$$

$$\Rightarrow \sin d = \frac{415}{4\sqrt{3}} = \frac{415}{69.28} = \frac{\sqrt{3}}{2}$$

$$S_{\text{مستطیل}} = df \quad \text{مستطیل} \quad \text{مستطیل} = ?$$

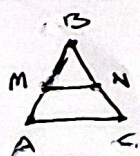
$$\frac{1}{2} \times 3 \times 2 \times \sin 120^\circ = \frac{1}{2} \times 4 \times 2 \times \frac{1}{2} = \frac{1}{2} \times 4 \times 2 = df \rightarrow 4 \times 2 = 114 \Rightarrow x^2 = 114 \Rightarrow x = 4$$

$$P_{\text{مستطیل}} = (2 \times 12) + (2 \times 12) = 40$$

$$S_{ADE} = \frac{1}{2} \times x \times x \times \sin A = 15 \sin A$$

$$S_{ABC} = \frac{1}{2} \times 5 \times 5 \times \sin A = 14.5 \sin A$$

$$14.5 \sin A - 15 \sin A = 3.5 \sin A = 1.75 \Rightarrow \sin A = 0.5 \Rightarrow A = 30^\circ \Rightarrow \sin A = \frac{1}{2}$$



$$\frac{S_{ABC}}{S_{BMN}} = r = \frac{\frac{1}{2} \times AB \times AC \times \sin B}{\frac{1}{2} \times BM \times BN \times \sin B} = \frac{AB \times AC}{BM \times BN} = \frac{AB}{BM} \times \frac{AC}{BN}$$

$$\Rightarrow \frac{AB}{BM} = r \times \frac{AC}{BN} = \frac{9}{5}$$

$$AM : 4K - 5K = K$$

$$\frac{BM}{AM} = \frac{5K}{K} = 5$$

$$\frac{-|\sin d|}{\cos d} = \frac{\sin d}{\cos d} \Rightarrow \sin d \rightarrow -$$

$$\frac{1}{|\cos d|} - \frac{1 + \sin d}{|\cos d|} = \frac{0 - \sin d}{|\cos d|} = \frac{\sin d}{\cos d} = \frac{-\sin d}{|\cos d|}$$

$$\Rightarrow \cos d \rightarrow -$$

نمایی سرم