

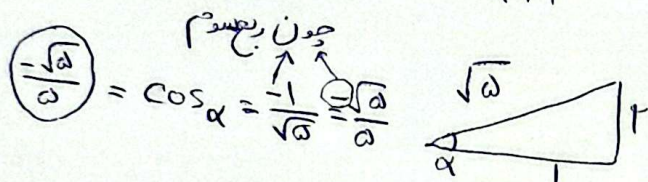
تُكَلِّفُ 11
 $\frac{11\pi}{\sqrt{e}} + \frac{11\pi}{\sqrt{e}} \rightarrow \frac{11\pi}{\sqrt{e}} + \frac{11\pi}{\sqrt{e}} \rightarrow \frac{11\pi}{\sqrt{e}} + \frac{11\pi}{\sqrt{e}}$

$\tan(\pi - \frac{\pi}{e}) + \sin(\pi - \frac{\pi}{e}) \cos(\pi + \frac{\pi}{e}) = -\tan(\frac{\pi}{e}) + (-\sin(\frac{\pi}{e})) \times (-\cos(\frac{\pi}{e}))$

$-1 + (-\frac{\sqrt{e}}{e}) \times (-\frac{\sqrt{e}}{e}) = -1 + \frac{1}{e} = \boxed{-\frac{1}{e}}$

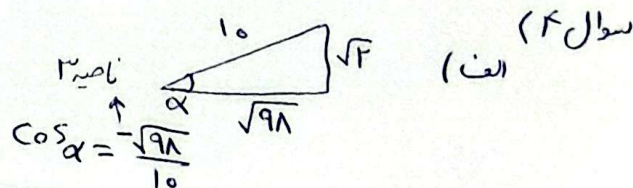
$\tan \frac{11\pi}{4} \sin \frac{11\pi}{4} + \cos \frac{10\pi}{4} = \tan \frac{3\pi}{4} \sin \frac{3\pi}{4} + \cos \frac{5\pi}{4} = \frac{1}{\sqrt{e}} - \frac{1}{\sqrt{e}} = \boxed{0}$

$\frac{r \cos \alpha - \sin \alpha}{\cos \alpha + \sin \alpha} \div \sin \alpha = \frac{r \cot \alpha - 1}{\cot \alpha + 1} = \frac{r \times e - 1}{r + 1} = \frac{11}{e}$

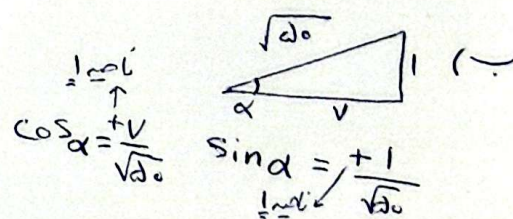


$\sin \alpha = r \cos \alpha$ (سؤال 1)
 $\tan \alpha = \frac{\sin \alpha}{\cos \alpha} = r$

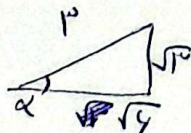
$\cos(\frac{11\pi}{4} + \alpha) = \cos(\frac{11\pi}{4}) \cos \alpha - \sin(\frac{11\pi}{4}) \sin \alpha$
 $\frac{11\pi}{4} = 2\pi + \frac{3\pi}{4} \Rightarrow \frac{-\sqrt{e}}{2} \times \frac{1}{\sqrt{e}} - \frac{-\sqrt{e}}{2} \times \frac{1}{\sqrt{e}} = \frac{\sqrt{194}}{20} - \frac{1}{20} = \frac{11}{20} - \frac{1}{20} = \frac{10}{20} = \boxed{\frac{1}{2}}$



$\sin(\frac{11\pi}{4} + \alpha) = \sin(\frac{11\pi}{4}) \cos \alpha + \cos(\frac{11\pi}{4}) \sin \alpha$
 $\frac{11\pi}{4} = 2\pi + \frac{3\pi}{4} \Rightarrow \frac{-\sqrt{e}}{2} \times \frac{1}{\sqrt{e}} + \frac{1}{2} \times \frac{1}{\sqrt{e}} = \frac{1}{\sqrt{e}} (-\frac{1}{\sqrt{e}} + \frac{1}{\sqrt{e}}) = \frac{1}{e} (-1 + 1) = \boxed{0}$



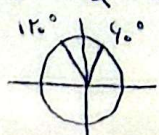
$\tan^r = (\frac{\sqrt{e}}{\sqrt{e}})^r = \frac{r}{e} = \boxed{\frac{1}{e}}$

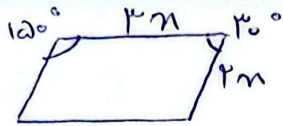


$\sin^r \alpha = \frac{1}{r} = \frac{1}{\sqrt{e}}$
 $\sin \alpha = \pm \frac{1}{\sqrt{e}}$

$r \sin^r \alpha + \cos^r \alpha = \frac{r}{e}$ (سؤال 1)
 $\sin^r \alpha + \cos^r \alpha = \frac{r}{e}$

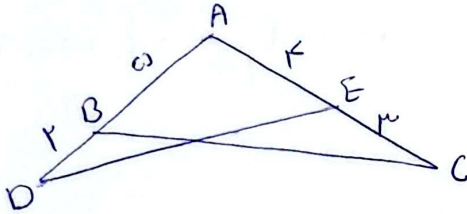
$\frac{1}{e} \times \sqrt{e} \times \sin \alpha = \frac{1}{e} \Rightarrow \sin \alpha = \frac{1}{\sqrt{e}} = \frac{1}{\sqrt{e} \times \sqrt{e}} = \frac{1}{e}$
 $\min \alpha = 40^\circ \quad \max \alpha = 110^\circ$
 $\frac{110}{40} = \boxed{2}$





سوال ۷
 $2m \times 3m \times \sin 120^\circ = 2\sqrt{3} \Rightarrow 1\sqrt{3}$
 $4m^2 = 1\sqrt{3} \Rightarrow m^2 = 1\sqrt{3} \Rightarrow m = \sqrt{1\sqrt{3}}$

مساحت المثلث = $2m + 2m + 2m + 2m = 4m = 4\sqrt{1\sqrt{3}} = 4\sqrt{1\sqrt{3}}$

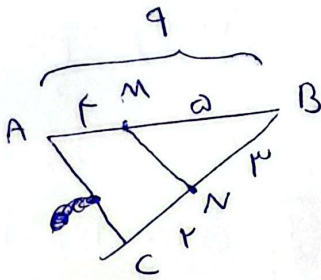


سوال ۸
 $S_{ABC} = \frac{a \times b \times \sin A}{2}$

$S_{ADE} = \frac{a \times b \times \sin A}{2}$

$S_{ABC} - S_{ADE} = 1\sqrt{3} \sin A - 1\sqrt{3} \sin A = 1\sqrt{3} \sin A$

$\Rightarrow \sin A = \frac{1\sqrt{3}}{1\sqrt{3}} = 1 \Rightarrow A = 90^\circ$



سوال ۹
 $S_{BMN} = \frac{BM \times BN \times \sin B}{2}$

$S_{ABC} = \frac{BC \times AB \times \sin B}{2} = 1\sqrt{3} \times \frac{BM \times BN \times \sin B}{2}$

$\frac{BC \times AB}{2} = 1\sqrt{3} \times \frac{BM \times BN}{2} \Rightarrow \Delta AB = 9BM \Rightarrow \frac{BM}{AM} = \frac{a}{c}$

سوال ۱۰
 $\frac{|\sin \alpha|}{\cos} = -\frac{1}{\cot}$

$\frac{|\sin \alpha|}{\cos} = -\frac{\sin \alpha}{\cos} \Rightarrow |\sin \alpha| = -\sin \alpha \Rightarrow \sin \alpha < 0$

$\frac{1}{\sqrt{\cos \alpha}} - \tan \alpha = \frac{1 + \sin \alpha}{|\cos \alpha|}$

$\frac{1}{|\cos \alpha|} - \frac{\sin \alpha}{\cos \alpha} = \frac{1 + \sin \alpha}{|\cos \alpha|} \Rightarrow \frac{-\sin \alpha}{\cos \alpha} = \frac{1 + \sin \alpha - 1}{|\cos \alpha|} \Rightarrow \frac{-1}{\cos \alpha} = \frac{1}{|\cos \alpha|} \Rightarrow \cos \alpha < 0$

$\left. \begin{matrix} \sin \alpha < 0 \\ \cos \alpha < 0 \end{matrix} \right\} \Rightarrow \alpha \text{ در ربع دوم}$