

سوال ۱) ہمہ شان یک دور کامل بغیر طیارہ زندہ اند $\Rightarrow \tan(\pi + \frac{\pi}{4}) + \sin(\pi + \frac{\pi}{4}) \times \cos(\pi + \frac{\pi}{4}) \Rightarrow -1 + (-\frac{\sqrt{2}}{2} \times \frac{\sqrt{2}}{2}) = -\frac{3}{2}$

$\tan(\frac{\pi}{4}) + \sin(\frac{\pi}{4}) \times \cos(\frac{\pi}{4}) \Rightarrow -1 + (-\frac{\sqrt{2}}{2} \times \frac{\sqrt{2}}{2}) = -\frac{3}{2}$

ب) $\tan(\pi + \frac{\pi}{4}) \times \sin(\pi + \frac{\pi}{4}) + \cos(\pi + \frac{\pi}{4})$

$\tan(\frac{\pi}{4}) \times \sin(\frac{\pi}{4}) + \cos(\frac{\pi}{4}) \Rightarrow \frac{\sqrt{2}}{2} \times \frac{\sqrt{2}}{2} + (-\frac{1}{2}) = -\frac{1}{2}$

سوال ۲) $\frac{\cos d}{\sin d} = f \Rightarrow f \sin d = \cos d \quad \frac{f \cos d - \sin d}{\cos d + \sin d} = \frac{11 \sin d - \sin d}{8 \sin d} = \frac{10 \sin d}{8 \sin d} \Rightarrow \frac{5}{4}$

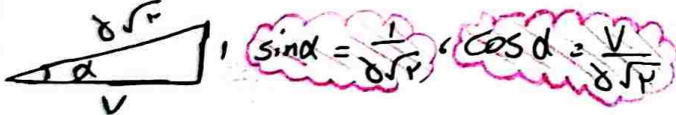
سوال ۳) $\sin^2 d + \cos^2 d = 1 \Rightarrow f \cos^2 d + \cos^2 d = 1 \Rightarrow \cos^2 d = \frac{1}{8} \Rightarrow \cos d = \pm \frac{1}{\sqrt{8}}$
 $\sin d = f \cos d \Rightarrow \sin^2 d = \frac{f^2}{8} \Rightarrow \sin d = \pm \frac{f}{\sqrt{8}}$

$\cos d = -\frac{1}{\sqrt{8}}$ از آنجایی که امکان نه ناحیه سوم است پس هم $\sin d$ و هم $\cos d$ عدد منفی اند نه نتیجه

سوال ۴) $\sin^2 d + \cos^2 d = 1 \Rightarrow \frac{1}{10} + \cos^2 d = 1 \Rightarrow \cos^2 d = \frac{9}{10} \Rightarrow \cos d = \pm \frac{3}{\sqrt{10}} = \pm \frac{3\sqrt{10}}{10}$

$\cos(\frac{\pi}{4} + d) \Rightarrow \cos \frac{\pi}{4} \times \cos d - \sin \frac{\pi}{4} \times \sin d \Rightarrow (-\frac{\sqrt{2}}{2} \times \frac{3\sqrt{10}}{10}) + (\frac{\sqrt{2}}{2} \times \frac{\sqrt{2}}{10}) = \frac{1}{5} - \frac{3}{5} = -\frac{2}{5}$

$\sin(\frac{\pi}{4} + d) = (\sin d \cdot \cos \frac{\pi}{4}) + (\cos d \cdot \sin \frac{\pi}{4}) \Rightarrow (\frac{1}{\sqrt{10}} \times \frac{\sqrt{2}}{2}) + (-\frac{3\sqrt{10}}{10} \times \frac{\sqrt{2}}{2}) = \frac{1}{10} - \frac{3}{10} = -\frac{2}{10} = -\frac{1}{5}$



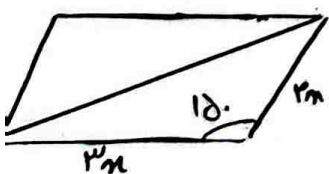
$\sin \alpha = \frac{1}{9\sqrt{2}}, \cos \alpha = \frac{\sqrt{2}}{9\sqrt{2}}$

$f \sin^2 m + \cos^2 m = \frac{f}{m}$
 $-\sin^2 m - \cos^2 m = -1$
 $\sin^2 m = \frac{1}{m}, \cos^2 m = \frac{f}{m}$

$\tan^2 m = \frac{\sin^2 m}{\cos^2 m} = \frac{\frac{1}{m}}{\frac{f}{m}} = \frac{1}{f} \quad \text{☺}$

$\frac{1}{f} \sin^2 a = f \Rightarrow \sin^2 a \cdot 4\sqrt{3} = 4 \Rightarrow \sin^2 a = \frac{4}{4\sqrt{3}} = \frac{1}{\sqrt{3}} \Rightarrow \sqrt{\frac{1}{\sqrt{3}}}$

$\sin 40^\circ \approx \sqrt{\frac{1}{\sqrt{3}}} \quad \sin 12^\circ \approx \sqrt{\frac{1}{\sqrt{3}}} \Rightarrow \frac{12^\circ}{40^\circ} \approx 1 \quad \text{☺}$



$\frac{1}{2} \sin 10^\circ \times 10 \times 10 = 25$

$4x^2 = 10 \Rightarrow x^2 = \frac{5}{2} \Rightarrow x = \sqrt{\frac{5}{2}}$

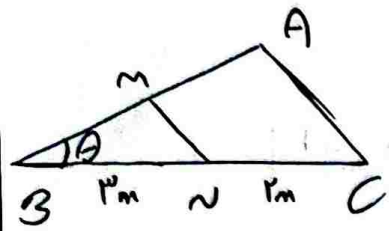
$P = 10x = 10\sqrt{\frac{5}{2}}$

(1) $|S_{ADE} - S_{ABC}| = \frac{1}{2} \delta$ (سؤال 1)

$$\left| \frac{1}{2} \sin A (\cancel{AB} \times \cancel{AC} - \delta \times \cancel{V}) \right| \Rightarrow \frac{1}{2} \sin A = \frac{1}{2} \Rightarrow \sin A = \frac{1}{2} \Rightarrow A = 30^\circ$$

$$\tan 30^\circ = \frac{1}{\sqrt{3}} = \frac{r}{\sqrt{r^2}}$$

(2) سؤال 2



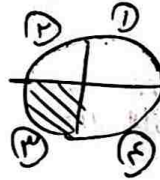
$$\frac{S_{ABC}}{S_{BMN}} = \frac{\frac{1}{2} \sin \theta (AB \times BC)}{\frac{1}{2} \sin \theta (BM \times BN)} = \frac{(AM + BM) \times \delta m}{(BM) \times (r_m)} \Rightarrow \frac{AM + BM}{BM} = \frac{q}{\delta}$$

$$4BM = \delta BM + \delta AM \Rightarrow r_{BM} = \delta AM \Rightarrow \frac{BM}{AM} = \frac{\delta}{r} = \frac{1}{2}$$

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

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

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



في النصف الثاني