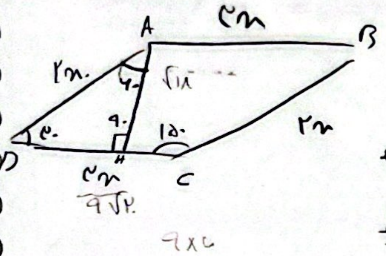
دریا دیانی دردشتی .

(۲۵)

(۱)



$AH \times 6x = 54$

$AH \times x = 18 \rightarrow x^2 = 18 \rightarrow x = 3\sqrt{2}$

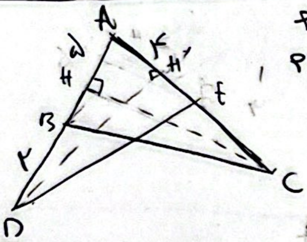
$\sin 30^\circ = \frac{AH}{2x} = \frac{1}{2} \Rightarrow AH = x$

محیط $= 6x + 4x = 10x = 30\sqrt{2}$

(۲)

---

(۲)



$S_{ABC} - S_{ADE} = 1{,}75$

$S = \frac{1}{2} ab \sin\alpha \rightarrow \frac{1}{2} \times 5 \times 7 \times \sin A - \frac{1}{2} \times 7 \times 4 \times \sin A = 1{,}75$

$\frac{35}{2} \sin A - \frac{28}{2} \sin A = 1{,}75 \rightarrow \frac{7}{2} \sin A = \frac{7}{4}$

$\sin A = \frac{\frac{7}{4}}{\frac{7}{2}} = \frac{1}{2} \rightarrow$ زاویه حاده $\rightarrow \tan = \frac{\frac{1}{2}}{\frac{\sqrt{3}}{2}} = \frac{\sqrt{3}}{3}$

(۲)

---

(۳)

$\frac{1}{\sqrt{\cos^2 a}} - \tan a = \frac{1 + \sin a}{|\cos a|} \qquad \frac{|\sin a|}{\cos a} = -\frac{1}{\cot a}$

$\frac{1}{|\cos a|} - \frac{\sin}{\cos a} = \frac{1 + \sin}{|\cos a|} \quad , \quad \frac{|\sin a|}{\cos a} = -\frac{1}{\cot} = -\frac{\sin a}{\cos a} \rightarrow \sin < 0$

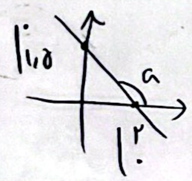
$|\cos a| < 0$

a در ناحیه سوم است

(۲)

---

(۴)



$\tan a = \frac{\text{ع}}{\text{ق}} \rightarrow \begin{vmatrix} 0 \\ 1{,}5 \end{vmatrix} \begin{vmatrix} 2 \\ 0 \end{vmatrix} \rightarrow \frac{1{,}5}{-2} = -0{,}75 = -\frac{3}{4}$

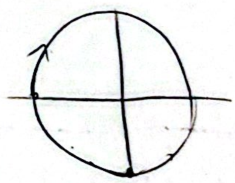
$\tan\left(\frac{\pi}{2} - \alpha\right) = \cot a = -\frac{4}{3}$

(۲)

---

(۵)

$\frac{3\cos(248) - 2\sin(158)}{\sin(202) - \cos(292)} = \frac{3\cos\left(\frac{3\pi}{2} - 22\right) - 2\sin(\pi - 22)}{\sin(\pi + 22) - \cos\left(\frac{3\pi}{2} + 22\right)} =$

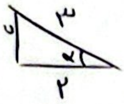


(۲)

$\frac{-3\sin 22 - 2\sin 22}{-\sin 22 - \sin 22} = \frac{-5\sin 22}{-2\sin 22} = 2{,}5$

(6)

$$\frac{\sin(\frac{\pi}{2}+a)-\sin(a-\pi)}{|\tan^2 a-1|}=\frac{\cos a+\sin a}{|\tan^2 a-1|}=\frac{\frac{2}{3}-\frac{\sqrt5}{3}}{|\frac{5}{4}-1|}=\frac{\frac{2}{3}-\frac{\sqrt5}{3}}{\frac{1}{4}}=\frac{8-4\sqrt5}{3}$$



$\cos=\frac{2}{3}$

$\sin=-\frac{\sqrt{9-4}}{3}=-\frac{\sqrt5}{3}$

$\tan\alpha=\frac{-\frac{\sqrt5}{3}}{\frac{2}{3}}=-\frac{\sqrt5}{2}$

---

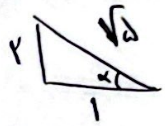
(7)

$\sin=2\cos\alpha \longrightarrow \frac{\sin}{\cos}=2=\tan a \qquad 1+\tan^2=\frac{1}{\cos^2}=1+4=5=\frac{1}{\cos^2}$

$\rightarrow \sin\alpha<0$, $\cos\alpha<0$

$\cos^2=\frac{1}{5}\xrightarrow{\text{ربع سوم}}\cos\alpha=\frac{-1}{\sqrt5}$

$\sin\alpha=\frac{-1}{2}$



---

(8)

$2mx+(m^2-1)y=3$

$\tan 60=\sqrt3$

$(m^2-1)y=3-2mx \rightarrow y=\frac{-2mx}{m^2-1}+\frac{3}{m^2-1}$

$\frac{-2m}{m^2-1}=\sqrt3 \rightarrow \sqrt3m^2-\sqrt3=-2m \rightarrow \sqrt3m^2+2m-\sqrt3=0$

$\xrightarrow{\sqrt3} m^2+2m-3 \rightarrow (m+3)(m-1) \rightarrow m=-\frac{3}{\sqrt3}=-\sqrt3$

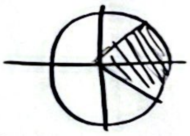
$m=\frac{+1}{\sqrt3}=\frac{\sqrt3}{3}$

$|-\sqrt3-\frac{\sqrt3}{3}|=\left|+\frac{4\sqrt3}{3}\right|$

---

(9)

$-\frac{\pi}{4}<x<\frac{\pi}{4}$



$\tan(\frac{\pi}{4}-x)=\frac{1-m}{2+m}$

$\tan(\alpha\pm\beta)=\frac{\tan\alpha\pm\tan\beta}{1\mp\tan\alpha\tan\beta}$

$-\frac{\pi}{4}<x<\frac{\pi}{4}$

$-\frac{\pi}{4}<-x<\frac{\pi}{4} \quad +\frac{\pi}{4} \rightarrow 0<\frac{\pi}{4}-x<\frac{\pi}{2}$

$0<\frac{1-m}{2+m}<+\infty \rightarrow \frac{1-m}{2+m}>0 \rightarrow -2 \quad 1$

$m\in(-2,1)$

---

(10)

$\tan(300)\cos(210)+\tan(480)\cos(840)$

$2\pi+120 \qquad 2\pi+120$

$-\sqrt3\times-\frac{\sqrt3}{2} \qquad \tan(120)\times\cos(120)$

$-\sqrt3\times\frac{\sqrt3}{2}$

$\frac{3}{2}+(-\frac{3}{2})=0$