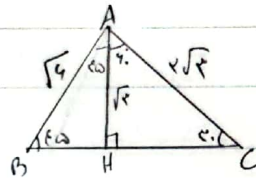


گروه دوم ریاضی

آرغینا کیسری

الف) $(\frac{\sqrt{2}}{2} + (-\frac{\sqrt{2}}{2}))(\frac{\sqrt{2}}{2} - (-\frac{\sqrt{2}}{2})) = (\frac{\sqrt{2}-\sqrt{2}}{2})(\frac{\sqrt{2}+\sqrt{2}}{2}) = \frac{-1}{2}$ ①

ب) $\frac{1 + 2 \times \frac{1}{2}}{2 \times \frac{2}{2} + 2 \times \frac{1}{2}} = \frac{2}{4} = \frac{1}{2}$



الف) $\sin 60^\circ = \frac{AH}{AB} \Rightarrow AH = \frac{\sqrt{2}}{2} \times 2\sqrt{2} = 2$

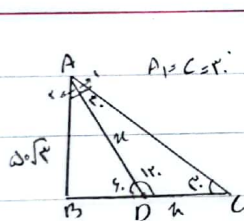
$AH = \frac{\sqrt{2} \times \sqrt{2}}{2} = 1$

$\sin 45^\circ = \frac{AH}{AC} = \frac{1}{\sqrt{2}} \Rightarrow AC = \sqrt{2}$

$\sin 45^\circ = \frac{AH}{AC} = \frac{1}{\sqrt{2}} = \frac{HC}{AC} \Rightarrow HC = \frac{\sqrt{2}}{2} \times \sqrt{2} = 1$

$\cos 30^\circ = \frac{HC}{AC} \Rightarrow \frac{\sqrt{3}}{2} = \frac{HC}{\sqrt{2}} \Rightarrow AC = \frac{1}{\sqrt{2}} \times \sqrt{2} = 1$

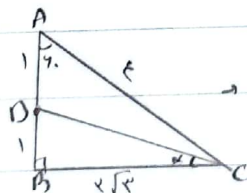
$AH = (4\sqrt{2}) - 1 = 4\sqrt{2} - 1 \Rightarrow AH = 4\sqrt{2} - 1$ $\sin B = \frac{AH}{AB} = \frac{4\sqrt{2}-1}{2\sqrt{2}} = \frac{\sqrt{2}}{2} \Rightarrow B = 45^\circ$ ②



$AC = \sqrt{2} \Rightarrow AD = DC = 1$

$\sin 45^\circ = \frac{AD}{AB} = \frac{1}{\sqrt{2}} \Rightarrow AB = \sqrt{2}$

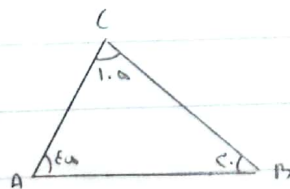
$AB = \sqrt{2}$



$\cos 45^\circ = \frac{1}{\sqrt{2}} \Rightarrow \frac{AB}{AC} = \frac{1}{\sqrt{2}} \Rightarrow AC = \sqrt{2}$

$\Rightarrow BC = \sqrt{1+1} = \sqrt{2} \Rightarrow DC = 1 + 1 = 2 \Rightarrow DC = \sqrt{2}$

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



$\sin 120^\circ = \sin(45^\circ + 75^\circ) = \sin 45^\circ \cos 75^\circ + \cos 45^\circ \sin 75^\circ$

$= \frac{\sqrt{2}}{2} \times \frac{\sqrt{2}}{2} + \frac{1}{2} \times \frac{\sqrt{2}}{2} = \frac{\sqrt{2} + \sqrt{2}}{4}$

$\frac{AB}{\sin C} = \frac{AC}{\sin B} \Rightarrow \frac{AB}{\sin C} = \frac{AC}{\sin B} \Rightarrow \frac{AB}{\frac{\sqrt{2} + \sqrt{2}}{4}} = \frac{1}{\frac{1}{2}} \Rightarrow \frac{AB}{\frac{\sqrt{2} + \sqrt{2}}{4}} = 2 \Rightarrow AB = \frac{\sqrt{2} + \sqrt{2}}{2}$

$\frac{S_{ABE}}{S_{BCD}} = \frac{\frac{1}{2} \times AB \times BC \times \sin B}{\frac{1}{2} \times BC \times CD \times \sin C} = \frac{1}{9}$

subject

Year Month Date

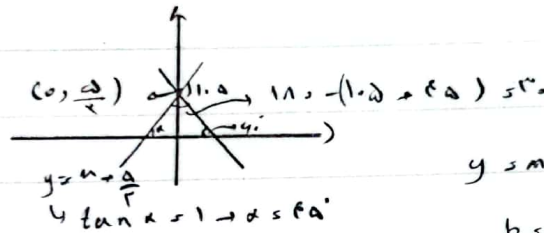
()

الف) $S_{\square} = 3 \times 4 \times \sin 120 = 3 \times 4 \times \frac{\sqrt{3}}{2} = 4\sqrt{3}$ (4)

ب) $S_{\square} = \frac{1}{2} \times 3 \times 4 \times \sin 120 = 4 + \frac{\sqrt{3}}{2} = 2\sqrt{3}$

م) $\tan \theta = \frac{4-2}{2-(-1)} = \frac{1}{3}$ (7)

$1 + \tan^2 \theta = \frac{1}{\cos^2 \theta} = 1 + \frac{1}{9} = \frac{10}{9} \rightarrow \cos \theta = \frac{3}{\sqrt{10}} \rightarrow \cos \theta = \frac{3}{\sqrt{10}} \rightarrow \cos \theta = \frac{3}{\sqrt{10}} \rightarrow \cos \theta = \frac{3}{\sqrt{10}}$ (5)



$y = mx + b \rightarrow m \tan \theta = -\sqrt{3}$

$b = \frac{4}{3} \rightarrow$ عرض از مبدأ هر دو خط برابر است

$mb = \frac{-4\sqrt{3}}{3}$

$f(\frac{5\pi}{9}) = -\cos(\frac{5\pi}{9}) + \cos(\frac{5\pi}{9}) - (-\cos(\frac{5\pi}{9}))$ (9)

$= \cos(\frac{5\pi}{9}) = -\sqrt{3}$

$\frac{\cos x - \sin x}{-\cos x + \sin x} = -1$ (10)