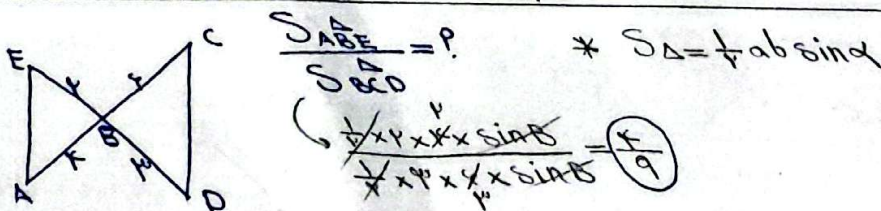
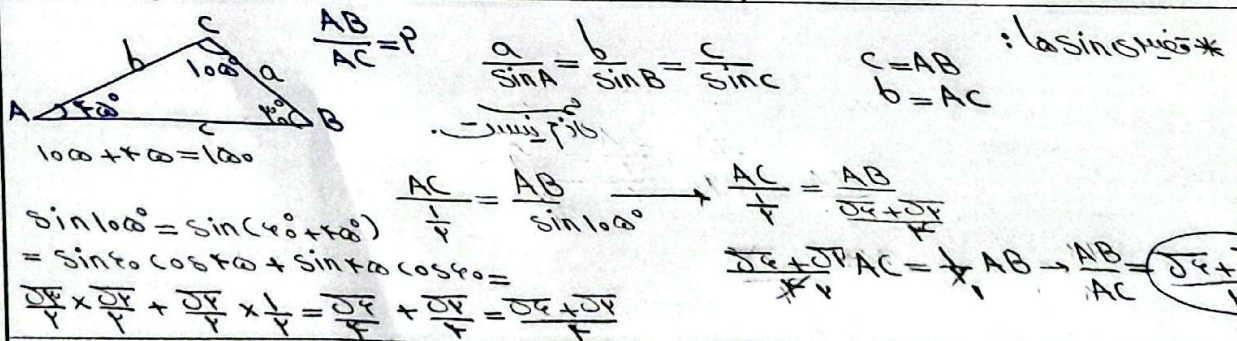
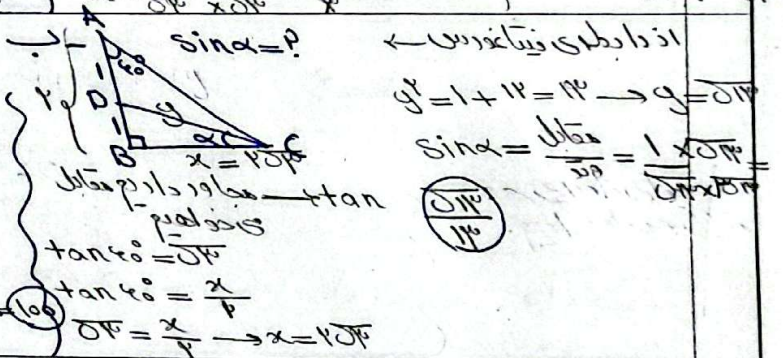
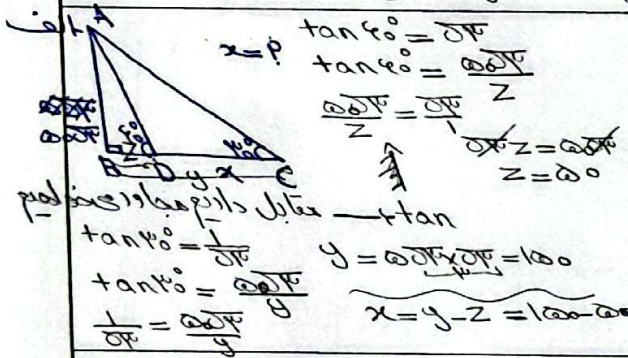
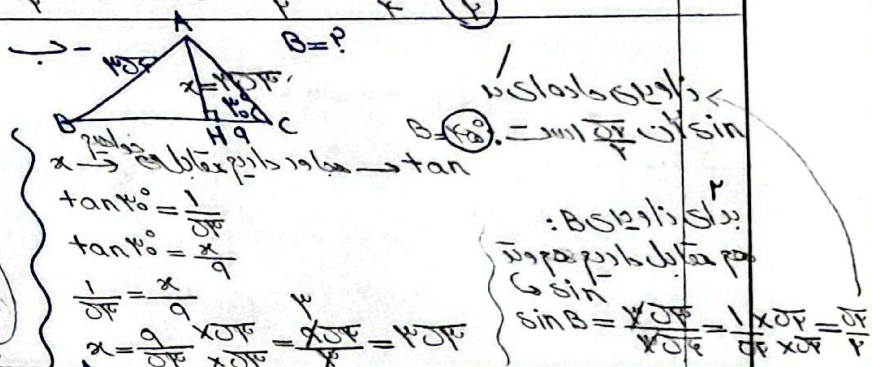
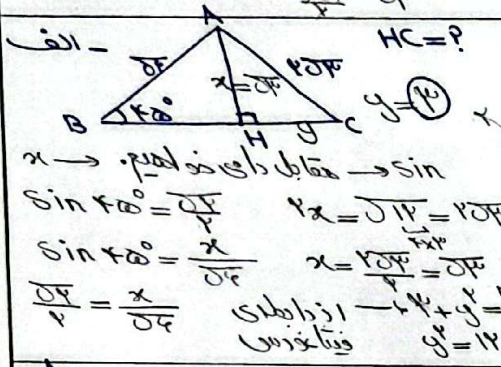


الف - $(\sin 135^\circ + \sin 45^\circ)(\cos 45^\circ - \cos 135^\circ) = (\frac{\sqrt{2}}{2} - \frac{\sqrt{2}}{2})(\frac{\sqrt{2}}{2} + \frac{\sqrt{2}}{2}) =$
 $\frac{1}{2} - \frac{1}{2} = \frac{\sqrt{2}}{2} - \frac{\sqrt{2}}{2} = \frac{-\sqrt{2}}{2}$
 اتحاد مزدوج

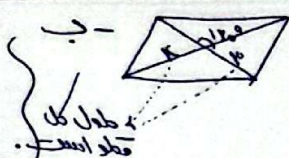
ب - $\frac{1 + \tan^2 45^\circ}{\sec^2 45^\circ + \csc^2 45^\circ} = \frac{1 + 1}{\frac{1}{\cos^2 45^\circ} + \frac{1}{\sin^2 45^\circ}} = \frac{2}{\frac{1}{(\frac{\sqrt{2}}{2})^2} + \frac{1}{(\frac{\sqrt{2}}{2})^2}} = \frac{2}{\frac{1}{\frac{1}{2}} + \frac{1}{\frac{1}{2}}} = \frac{2}{2+2} = \frac{1}{2}$
 $\tan 45^\circ = \frac{\sin 45^\circ}{\cos 45^\circ} = \frac{\frac{\sqrt{2}}{2}}{\frac{\sqrt{2}}{2}} = 1$
 $\sec 45^\circ = \frac{1}{\cos 45^\circ} = \frac{1}{\frac{\sqrt{2}}{2}} = \frac{2}{\sqrt{2}} = \sqrt{2}$
 $\csc 45^\circ = \frac{1}{\sin 45^\circ} = \frac{1}{\frac{\sqrt{2}}{2}} = \frac{2}{\sqrt{2}} = \sqrt{2}$





* $S_{\square} = ab \sin \alpha$

$(4 \times 5 \times \sin 110^\circ = 4 \times 5 \times \frac{\sqrt{3}}{2}) = 10\sqrt{3}$

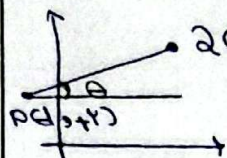


* $S_{\square} = \frac{1}{2} ab \sin \alpha$

$= \frac{1}{2} \times 4 \times 5 \times \sin \alpha$

$= \frac{1}{2} \times 4 \times 5 \times \frac{\sqrt{3}}{2} = 10\sqrt{3}$

6



$2(4, 1) \cos \theta = ?$

$\tan \theta = a = \frac{y_2 - y_1}{x_2 - x_1} = \frac{1 - 0}{4 - 0} = \frac{1}{4} = \frac{1}{4}$

$\tan^2 \theta + 1 = \frac{1}{\cos^2 \theta}$

$\frac{1}{16} + 1 = \frac{1}{\cos^2 \theta}$

$\frac{17}{16} = \frac{1}{\cos^2 \theta}$

$\cos^2 \theta = \frac{16}{17}$

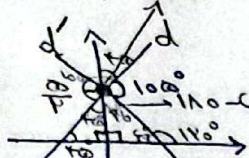
$\cos \theta = \frac{4 \times \sqrt{17}}{17}$

$= \frac{4\sqrt{17}}{17}$

7

$\tan \theta = \frac{b}{a} = ?$

$b = \frac{a}{\tan \theta} = \frac{1}{\tan \theta} = \frac{1}{1} = 1$



$d b \rightarrow a = \tan \alpha = 1 \rightarrow \alpha = 45^\circ$

$\alpha = \tan 140^\circ = -0.75$

$y = x + 0$

$y = x + \frac{0}{1} \rightarrow y = mx + \frac{0}{1}$

$b = \frac{0}{1}$

$mb = \frac{-0.75}{1}$

8

$f(x) = \cos(x + \frac{110^\circ}{4}) + \sin(\frac{90^\circ}{4} - x) - \tan(\frac{170^\circ}{4} + x)$

$f(\frac{10\pi}{4}) = ?$

$(\cos(100^\circ + 110^\circ) + \sin(90^\circ - 100^\circ) - \tan(170^\circ + 100^\circ)) =$

$\frac{0.75}{1} - \frac{0.75}{1} - 0.75 = -0.75$

$\frac{\sin(\frac{10\pi}{4} + x) + \cos(\frac{10\pi}{4} - x)}{\cos(\frac{10\pi}{4} + x) - \sin(\frac{10\pi}{4} - x)} = \frac{\sin(\frac{10\pi}{4} + x) + \cos(\frac{10\pi}{4} - x)}{\cos(\frac{10\pi}{4} + x) - \sin(\frac{10\pi}{4} - x)}$

$\cos(\frac{10\pi}{4} + x) - \sin(\frac{10\pi}{4} - x)$

$\cos(\frac{10\pi}{4} + x) - \sin(\frac{10\pi}{4} - x)$

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

9

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