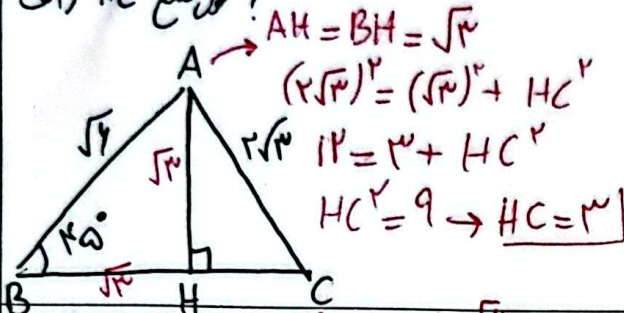


الف) $(\sin 135^\circ + \sin 225^\circ)(\cos 135^\circ - \cos 15^\circ) = \left(\frac{\sqrt{2}}{2} + \left(-\frac{\sqrt{2}}{2}\right)\right)\left(\frac{\sqrt{2}}{2} - \left(-\frac{\sqrt{2}}{2}\right)\right) =$

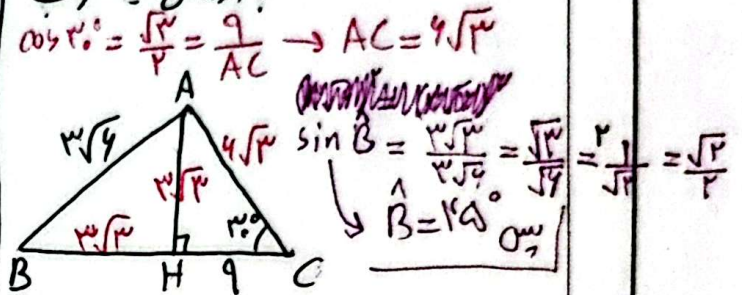
$\frac{\sqrt{2}-\sqrt{2}}{2} \times \frac{\sqrt{2}+\sqrt{2}}{2} = \frac{2-2}{2} = \boxed{-\frac{1}{2}}$

ب) $1 + 3 \tan^2 45^\circ \times \left(\frac{\sqrt{3}}{2}\right)^2 = 1$
 $\frac{1 + 3 \times 1 \times \frac{3}{4}}{3+1} = \frac{1+1}{4} = \frac{2}{4} = \boxed{\frac{1}{2}}$

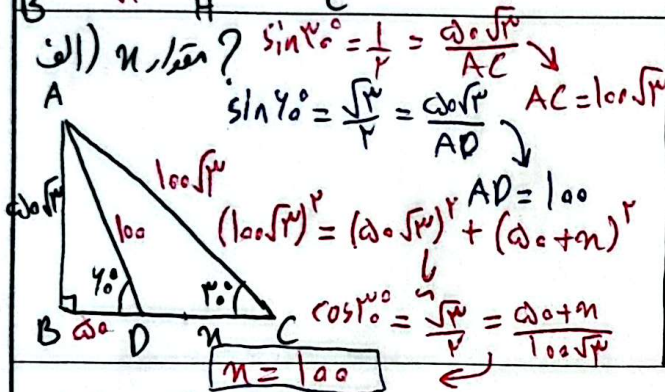
الف) ارتفاع HC؟



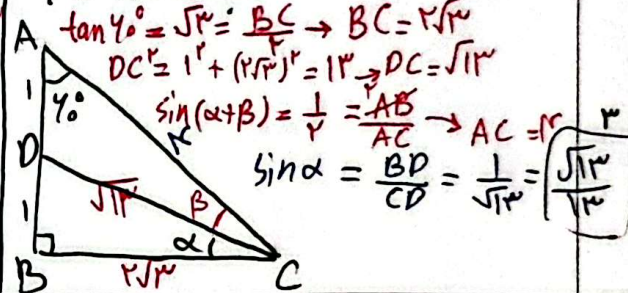
ب) اندازه زاویه B؟



الف) مقدار n؟



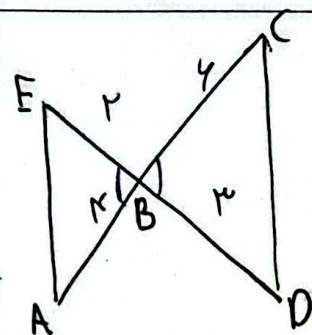
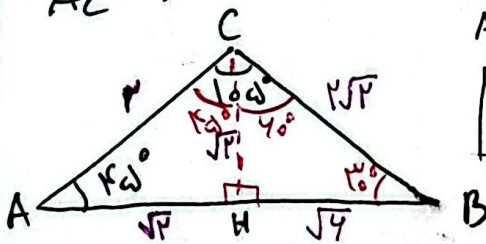
ب) $\sin \alpha = ?$



$\frac{AB}{AC} = ?$

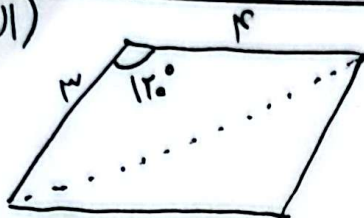
$AB = \sqrt{2} + \sqrt{2}$
 $AC = 2$

$\boxed{\frac{AB}{AC} = \frac{\sqrt{2} + \sqrt{2}}{2}}$



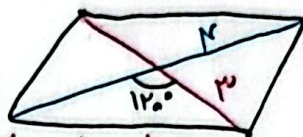
$\frac{S_{ABE}}{S_{BCD}} = \frac{\frac{1}{2} \times 2 \times 2 \times \sin B}{\frac{1}{2} \times 2 \times 4 \times \sin B} = \boxed{\frac{1}{2}}$

الف)



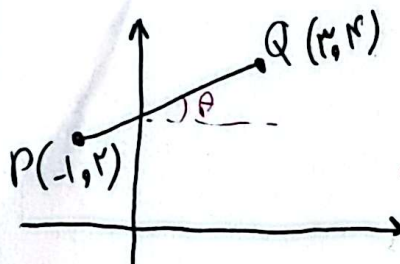
$$S = \frac{1}{2} \times 3 \times 4 \times \sin 120^\circ = \frac{1}{2} \times 3 \times 4 \times \frac{\sqrt{3}}{2} = 3\sqrt{3}$$

ب) (۳ و ۴ طول کل قطرها است)



$$S = \frac{1}{2} ab \sin \alpha = \frac{1}{2} \times 3 \times 4 \times \frac{\sqrt{3}}{2} = 3\sqrt{3}$$

$\cos \theta = ?$

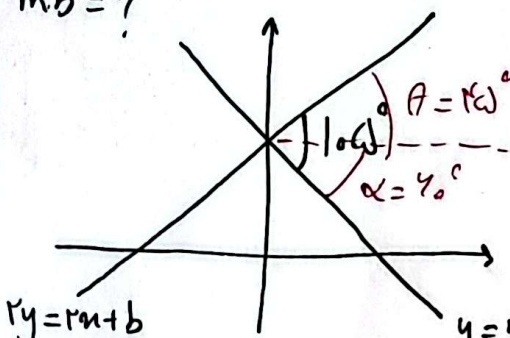


شیب خط = $\frac{y_2 - y_1}{x_2 - x_1} = \frac{4 - 2}{3 - (-1)} = \frac{2}{4} = \frac{1}{2}$

$\tan A = \frac{1}{2}$

$\cos \theta = \frac{1}{\sqrt{\tan^2 + 1}} = \frac{1}{\sqrt{\frac{1}{4} + 1}} = \frac{2}{\sqrt{5}}$

$mb = ?$



$\theta + \alpha = 180^\circ$

$y = mx + b \rightarrow y = x + 1$

$\tan \theta = 1 \rightarrow \theta = 45^\circ$

$180 - 45 = 135$

$\alpha = \beta \rightarrow \beta = 45^\circ \rightarrow \tan 45^\circ = 1$

$m = \sqrt{3}$

$1, 1 = \sqrt{3}(0) + b \rightarrow b = 1$

$mb = 1 \times \sqrt{3}$

$f(n) = \cos(\pi + n) + \sin(\frac{\pi}{2} - n) - \tan(\frac{\pi}{4} + n)$

$f(\frac{5\pi}{4}) = ?$
 $-\cos n + \cos n - (-\cot n) = \cot n$

$\rightarrow f(135^\circ) = \cot(135^\circ) = -1$

$\frac{\sin(\frac{14\pi}{5} + n) + \cos(\frac{14\pi}{5} - n)}{\cos(3\pi + n) - \sin(4\pi - n)} = \frac{\cos n + (-\sin n)}{-\cos n + \sin n}$

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