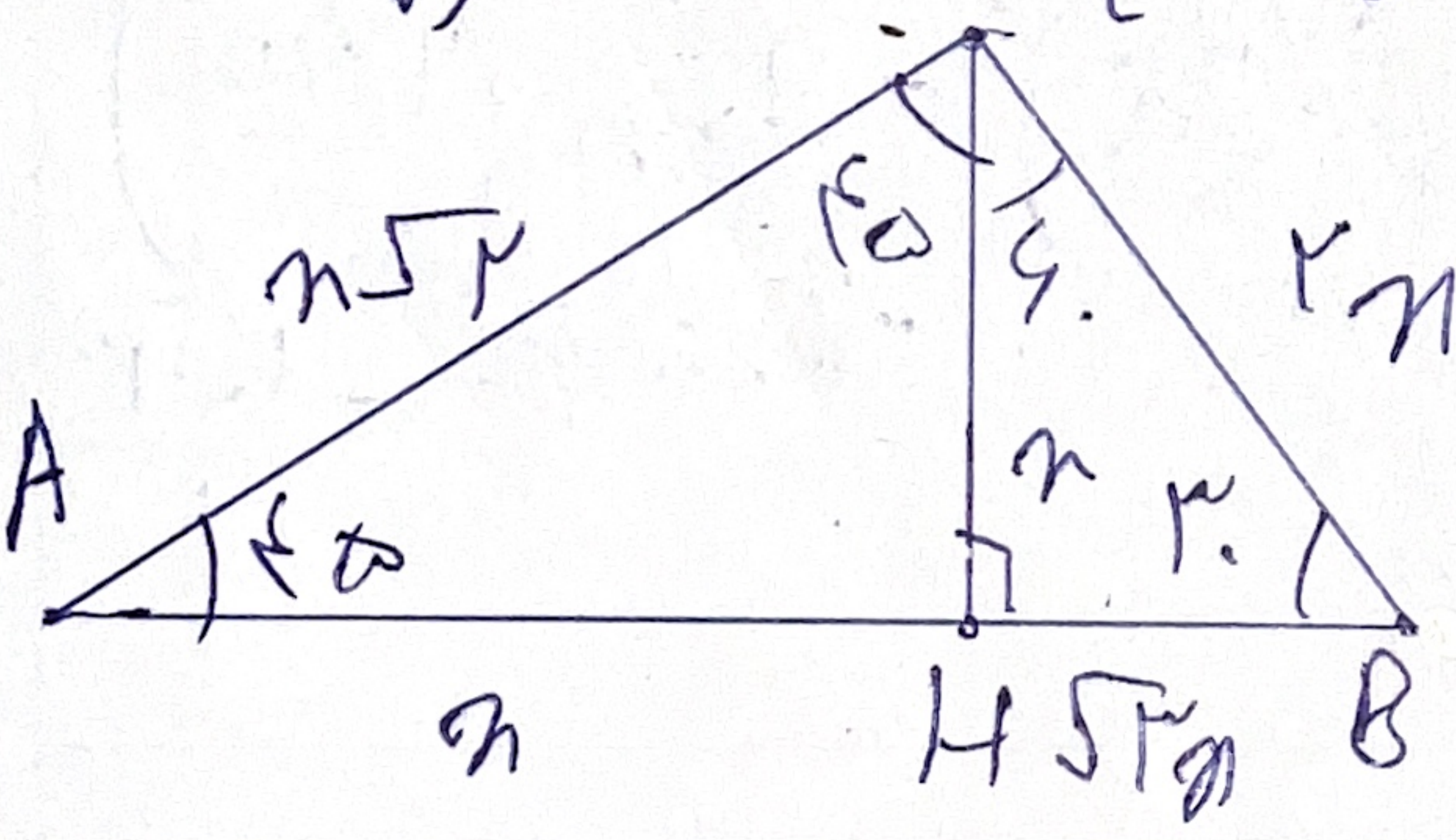
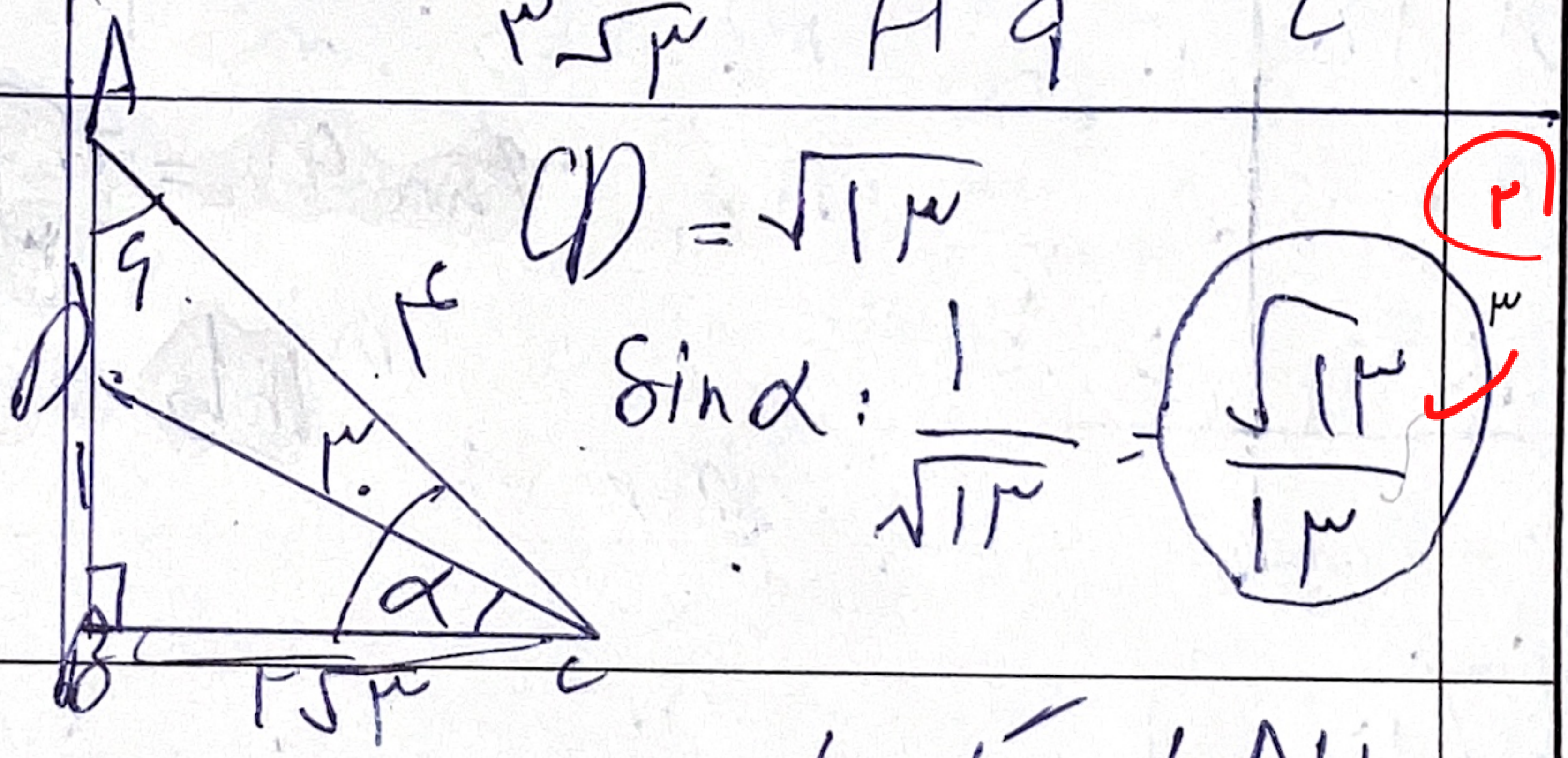
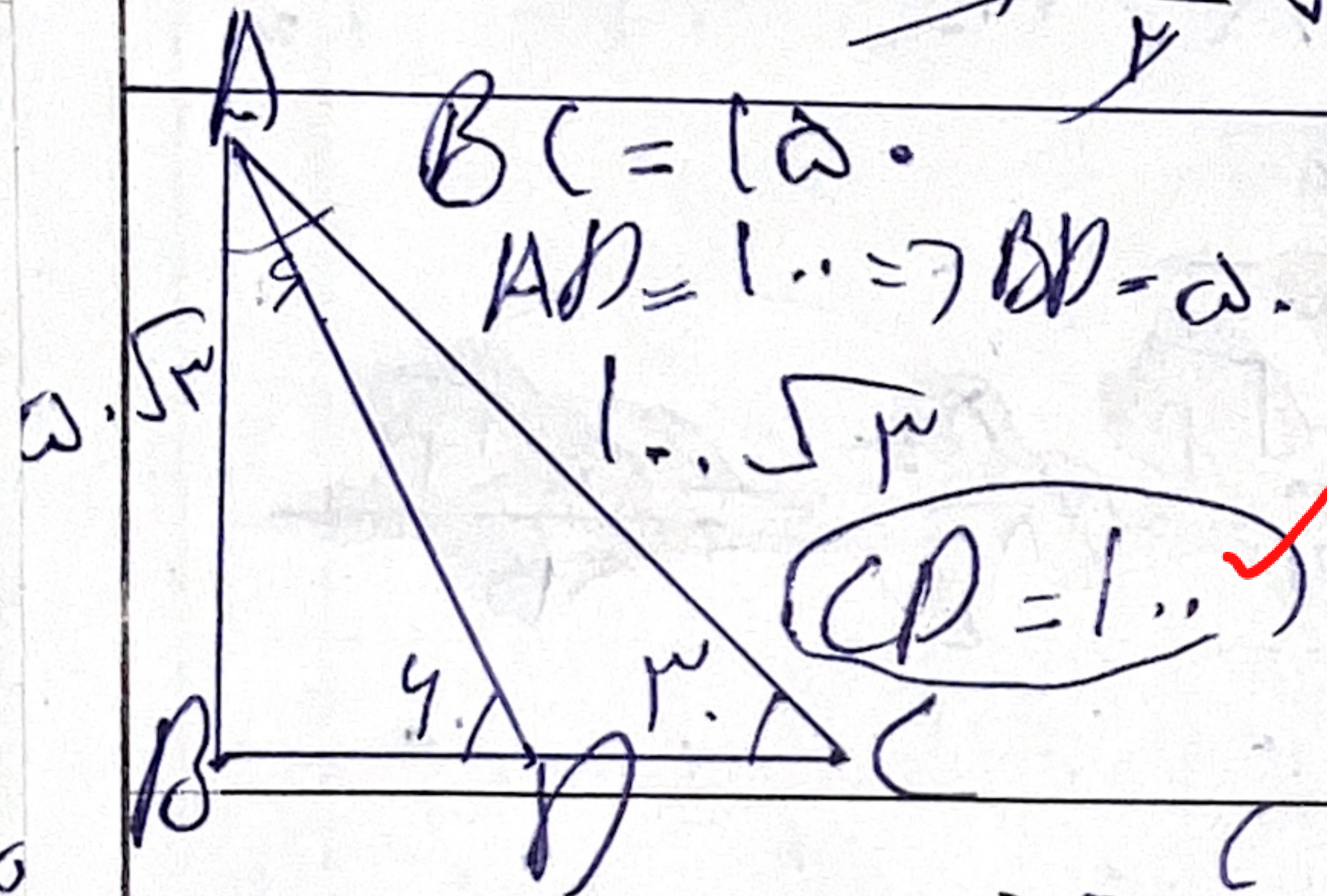
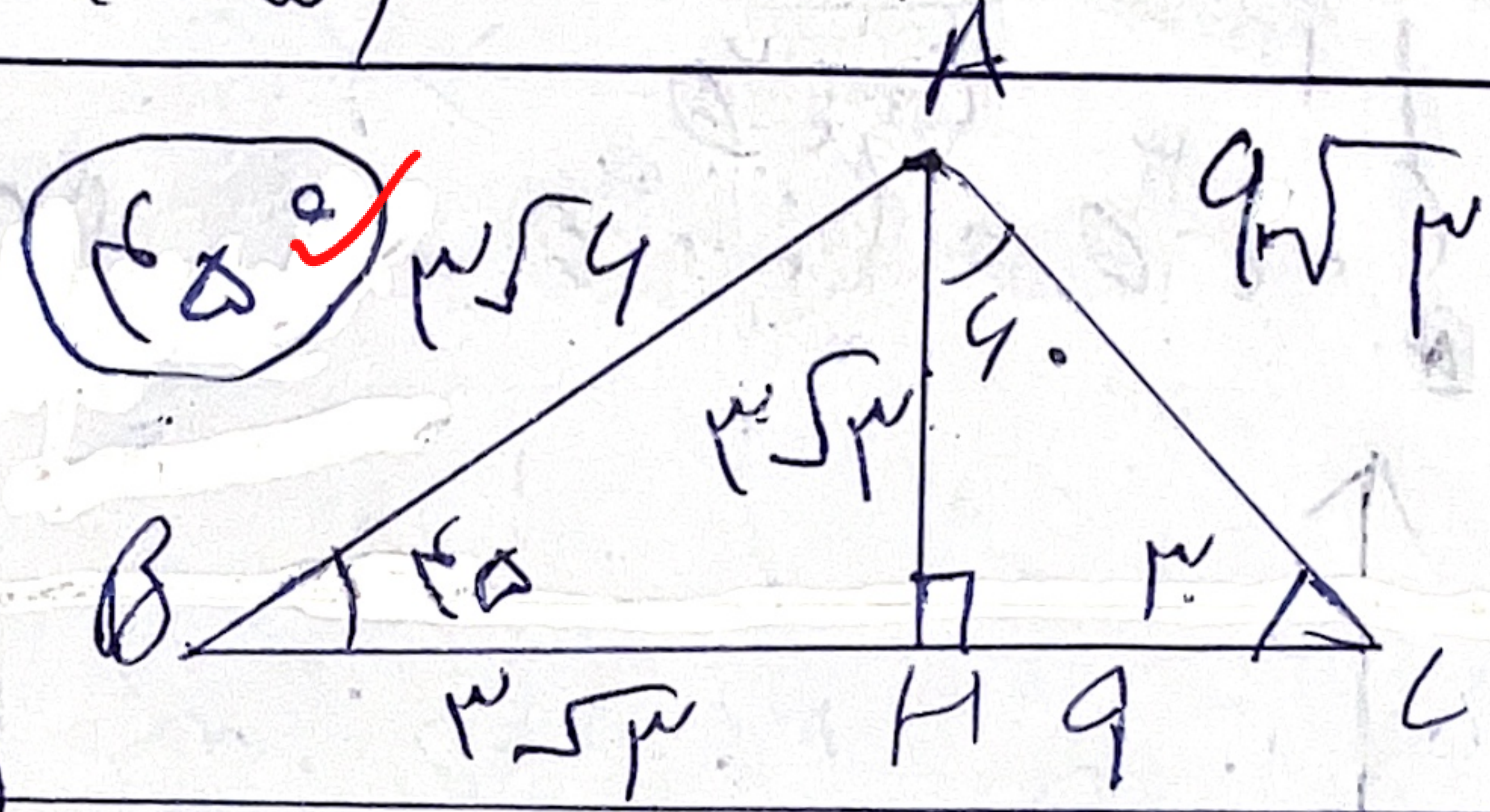
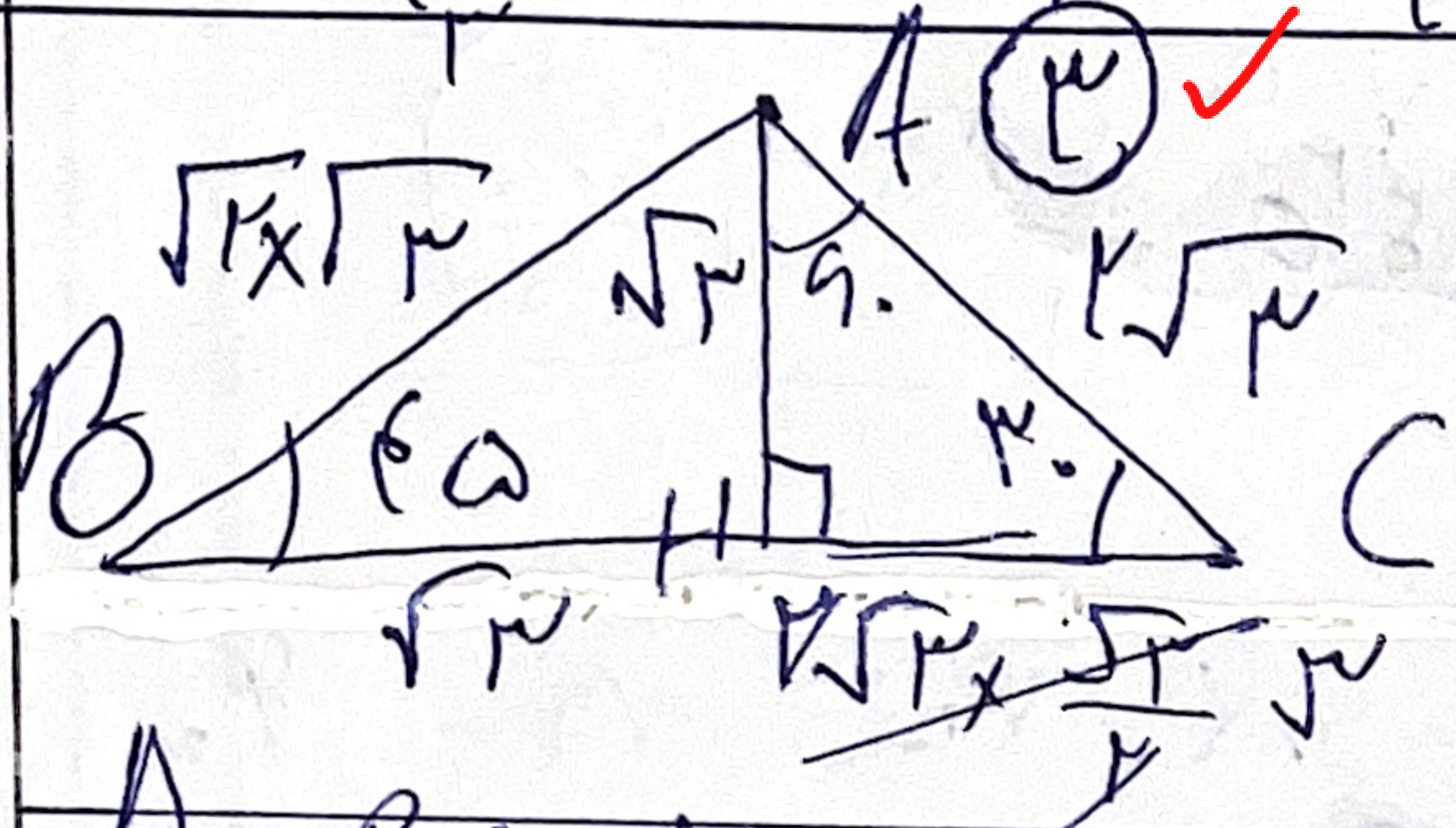


$\sin 45^\circ = \frac{1}{\sqrt{2}}$

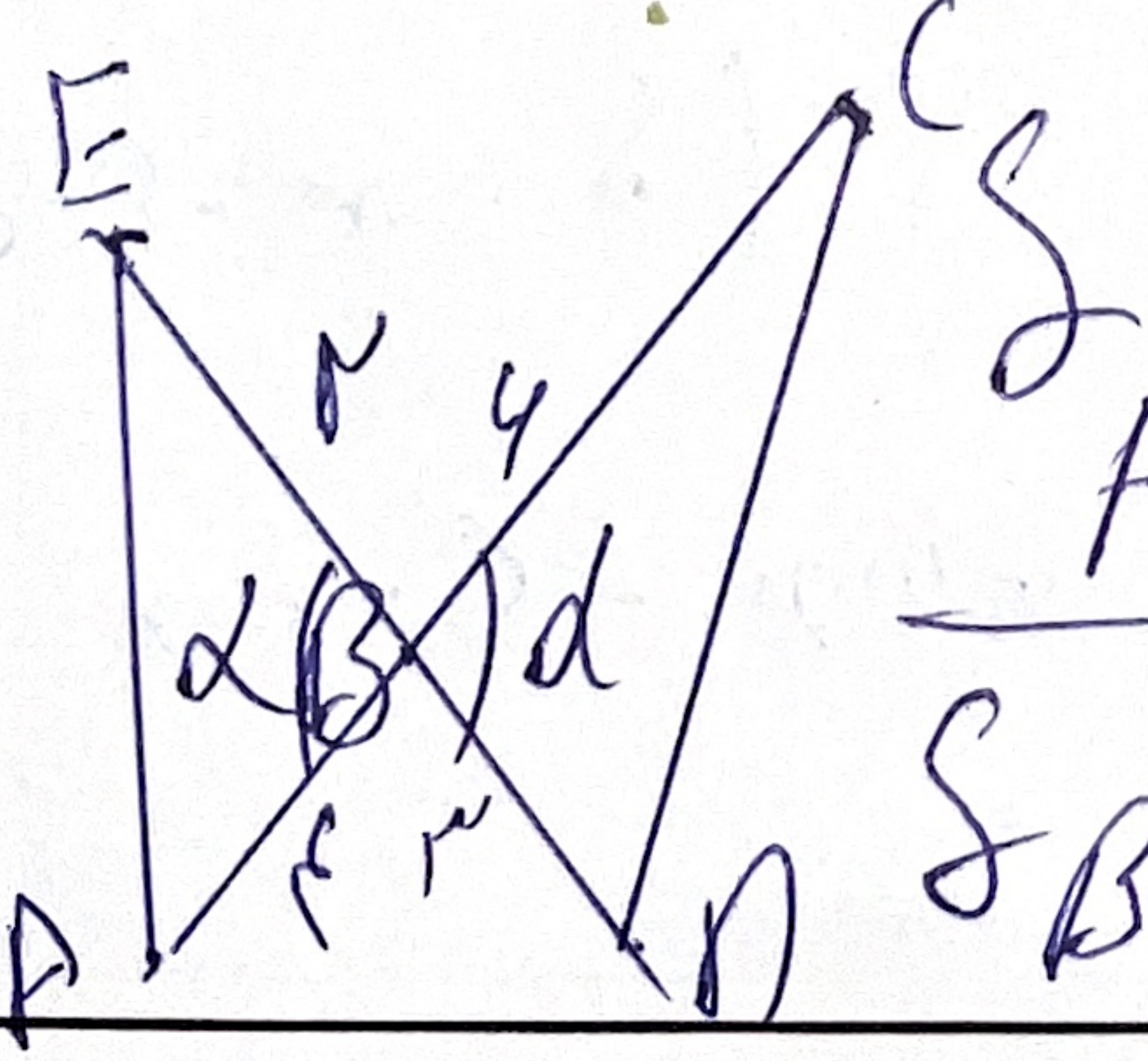
$\cos 45^\circ = \frac{1}{\sqrt{2}}$

الف) $(\sin(180^\circ - 45^\circ) + \sin(135^\circ - 90^\circ)) (\cos(135^\circ - 45^\circ) - \cos(180^\circ - 135^\circ))$
 $= \left(\frac{\sqrt{2}}{2} - \frac{\sqrt{2}}{2}\right) \left(\frac{\sqrt{2}}{2} + \frac{\sqrt{2}}{2}\right) = \frac{2-2}{4} = \frac{-1}{2}$

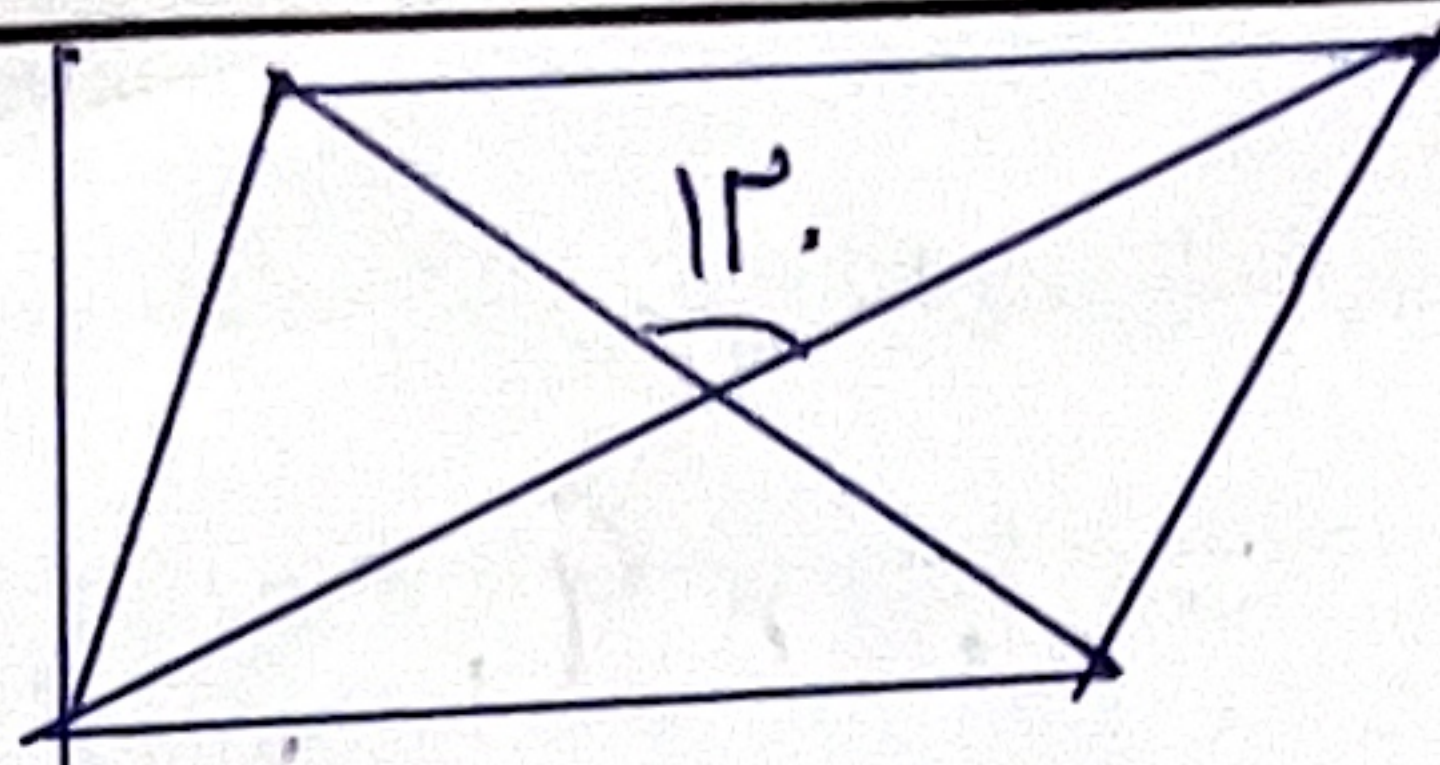
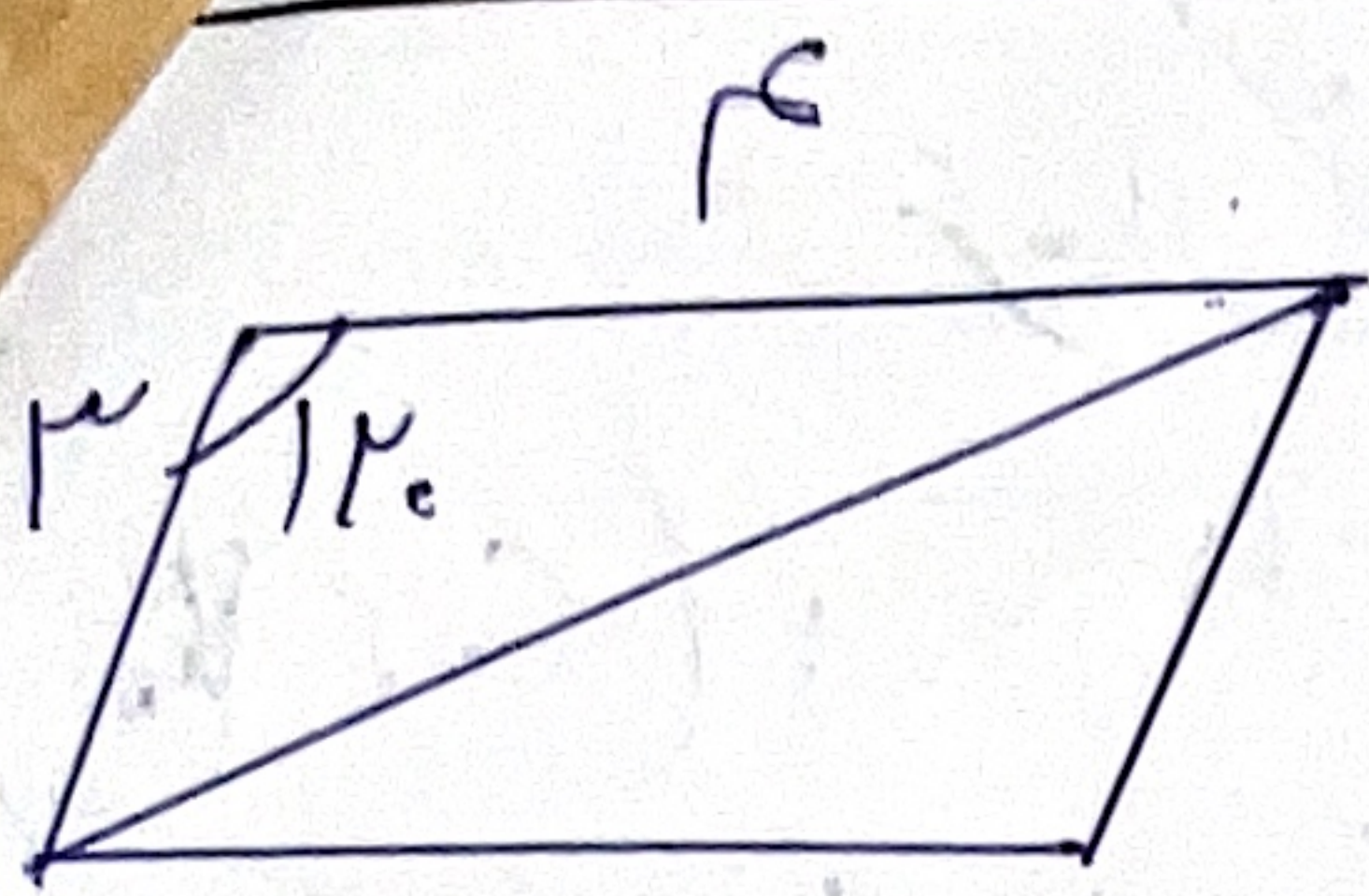
ب) $\frac{1 + \cos(180^\circ + 135^\circ)}{\cos(135^\circ - 135^\circ) + \cos(180^\circ + 45^\circ)} = \frac{1 + 1}{1 + 1} = \frac{2}{2} = 1$



$\frac{AB}{AC} = \frac{n(1+\sqrt{2})}{n(\sqrt{2})} = \frac{1+\sqrt{2}}{\sqrt{2}}$

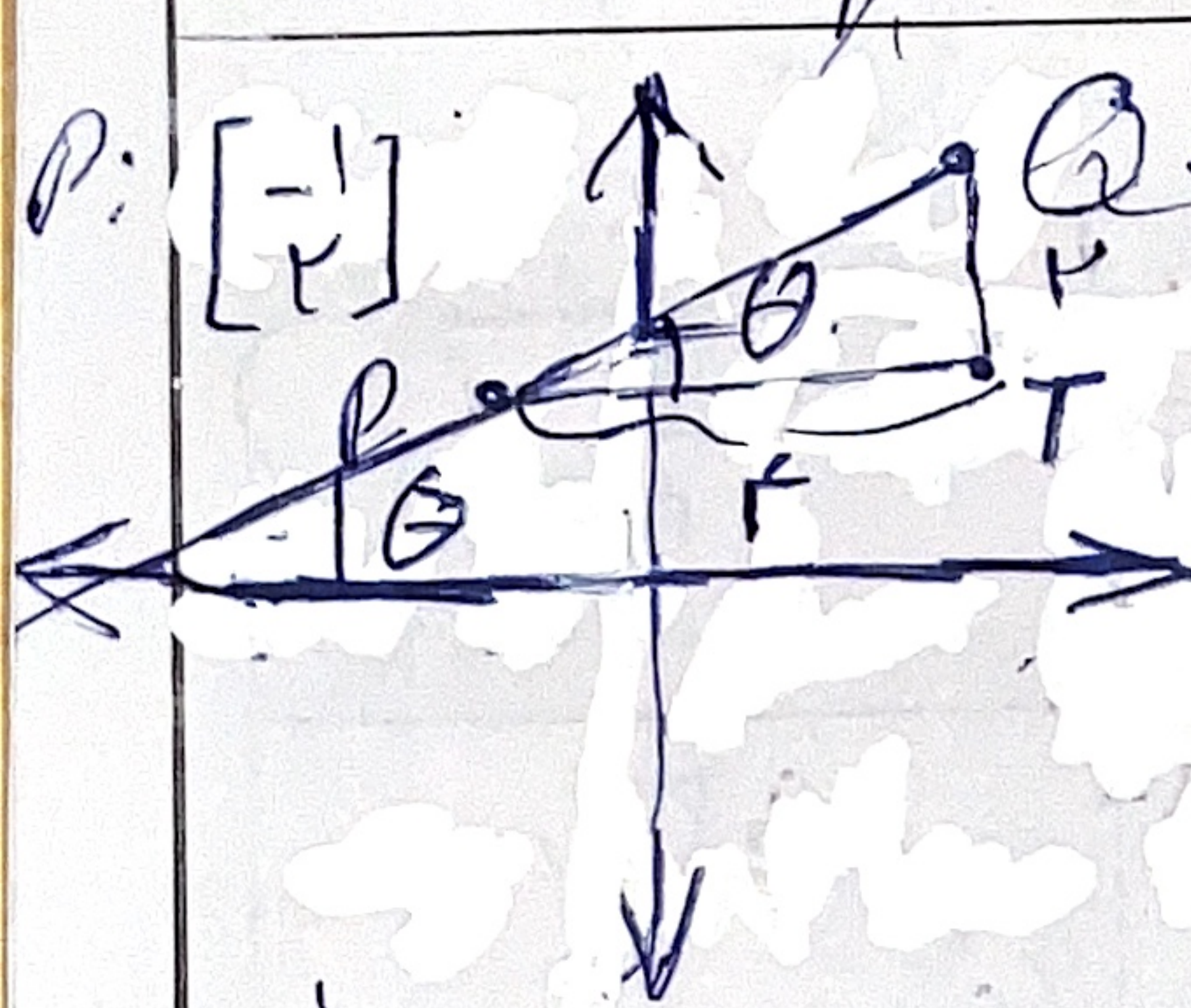


$\frac{ABE}{BCD} = \frac{x \cdot x \cdot \frac{1}{x} \sin \alpha}{y \cdot y \cdot \frac{1}{y} \sin \alpha} = \frac{1}{1} = 1$

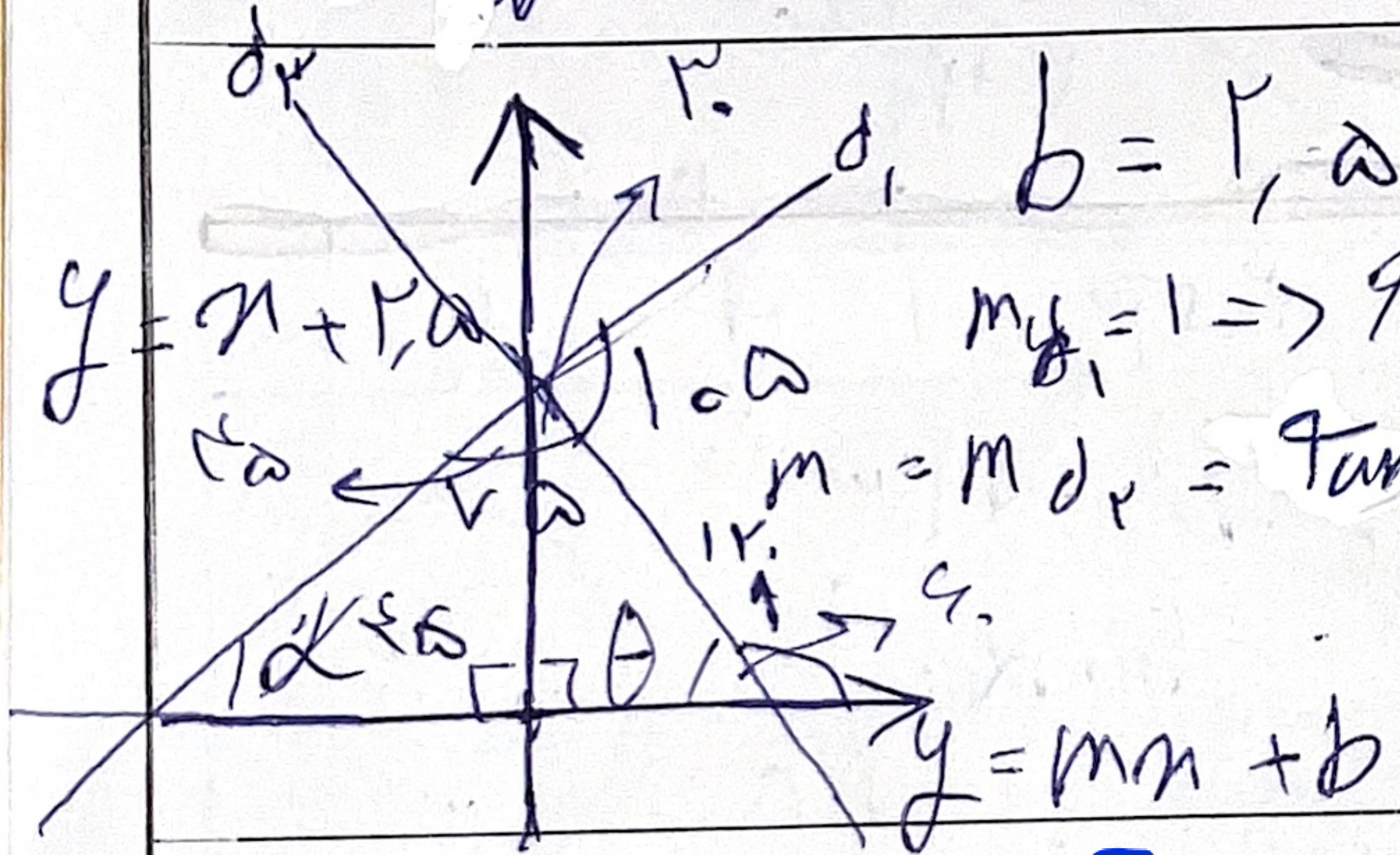


$$r \times \left(r \times \frac{1}{r} \times \frac{\sqrt{r}}{r} \right) = 9\sqrt{r} \checkmark$$

$$r \times \frac{1}{r} \times \frac{\sqrt{r}}{r} = \sqrt{r} \checkmark$$



$P: \begin{bmatrix} -1 \\ 1 \end{bmatrix}$ $Q: \begin{bmatrix} 1 \\ 1 \end{bmatrix}$ $Q^T = \begin{bmatrix} 1 \\ 1 \end{bmatrix}$ $T^P = \begin{bmatrix} 1 \\ 1 \end{bmatrix} (-1) = \begin{bmatrix} -1 \\ 1 \end{bmatrix}$
 $PQ^T = Q^T + T^P = 1 + 1 = 2$
 $\Rightarrow PQ = \sqrt{2}$
 $\Rightarrow \cos \theta = \frac{1}{\sqrt{2}} = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2} \checkmark$



$$mb = -\sqrt{3} \times \frac{a}{r} = \frac{-a\sqrt{3}}{r} \checkmark$$

$f\left(\frac{\omega\pi}{9}\right) = \left(\cos\left(\frac{11\pi}{9}\right) + \sin\left(-\frac{11\pi}{9}\right) - \tan\left(\frac{11\pi}{9}\right)\right)$
 $= \frac{1 - \sqrt{3} - \sqrt{3}}{r} = \frac{1 - 2\sqrt{3}}{r} = \frac{-\sqrt{3}}{r} \checkmark$

$\frac{\sin\left(\frac{\pi}{r} + \pi\right) + \cos\left(\frac{11\pi}{r} - \pi\right)}{\cos(\pi + \pi) - \sin(-\pi)} = \frac{-1(\sin\pi - \cos\pi)}{1 - 0} = \frac{-1(-1)}{1} = 1 \checkmark$