

الف) $\tan \frac{\pi}{4} + \sin \frac{\pi}{4} \cos \frac{\pi}{4} =$ به ۲۲۰ کسر بزن

$$+ (-1) + \left(\left(-\frac{\sqrt{2}}{2} \right) \left(-\frac{\sqrt{2}}{2} \right) \right) = -1 + \frac{1}{2} = -\frac{1}{2} \checkmark$$

ب) $\tan \frac{\pi}{6} \sin \frac{\pi}{6} + \cos \frac{\pi}{6} =$ وقت! $-\frac{\sqrt{3}}{2}$

$$= \frac{-\frac{\sqrt{3}}{2} \cdot \frac{1}{2}}{1} + \frac{\sqrt{3}}{2} = \frac{-\sqrt{3}}{4} + \frac{2\sqrt{3}}{4} = \frac{\sqrt{3}}{4}$$

ج) $\frac{\sin n}{\sin n} =$ تقسیم کنیم داریم:

$$\frac{3 \cos n - 1}{\cos n + 1} = \frac{11}{5} \checkmark$$

د) $\sin^2 a = \cos^2 a \Rightarrow \cos^2 a = \cos^2 a$

ه) $\cos^2 a = 1 \Rightarrow \cos a = \frac{1}{5}$ از آن در ربع سوم

$$\cos a = -\frac{1}{5} = \frac{-\sqrt{5}}{5} \checkmark$$

و) $\cos(A+B) = \cos A \cos B - \sin A \sin B$ "فرمول جمع"

ز) $\sin(A+B) = \sin A \cos B + \sin B \cos A$ "فرمول جمع"

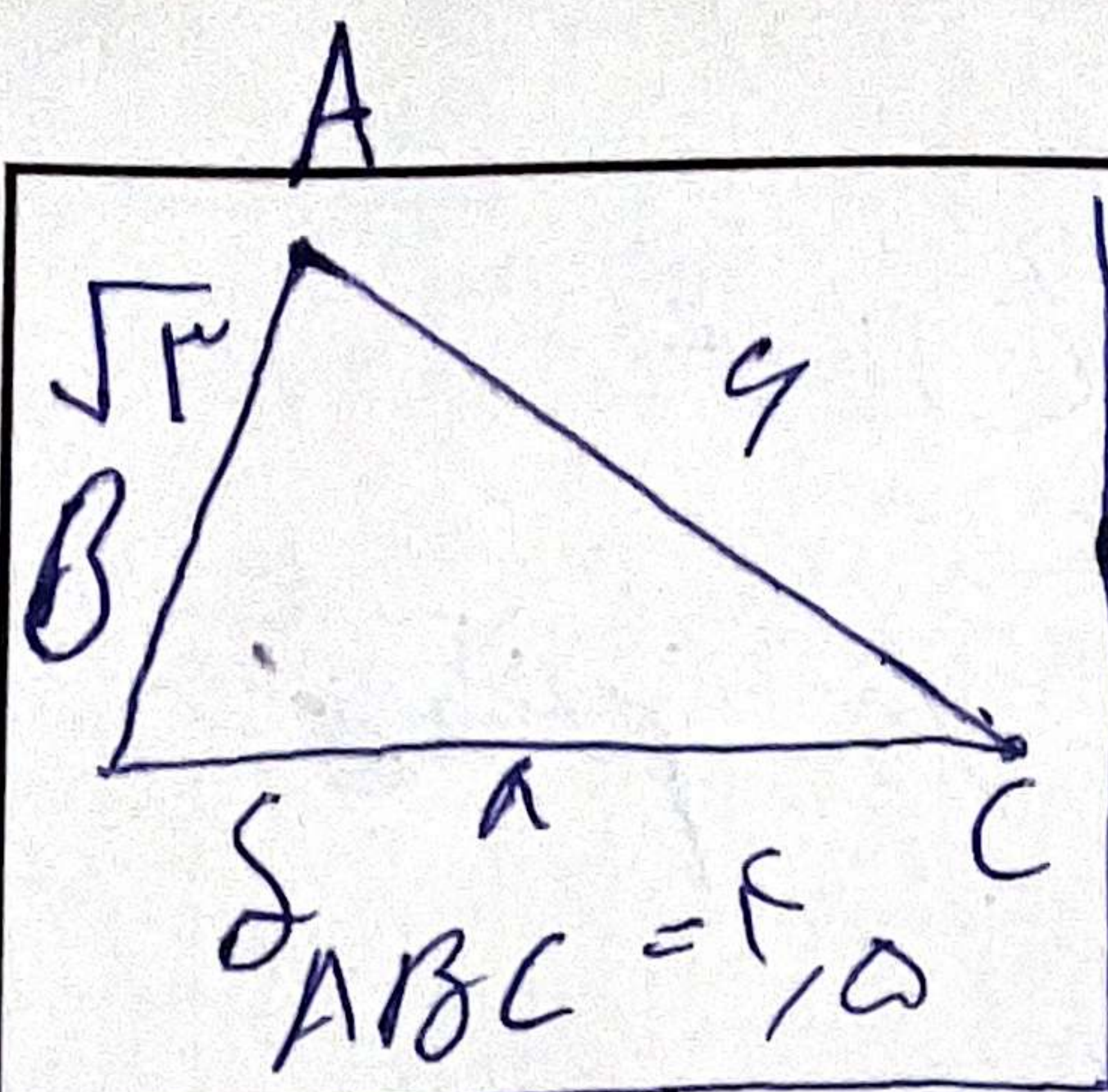
ح) $\cos a = \frac{\sqrt{5}}{5}$ الف $\frac{3}{5}$

ط) $\sin a = \frac{1}{5} \Rightarrow \frac{1}{5} \checkmark$ الف $\frac{3}{5}$

ی) $(\sin^2 n + \cos^2 n) + \sin^2 n = \frac{1}{3} \Rightarrow \sin^2 n = \frac{1}{3}$

ک) $\cos^2 n = \frac{1}{3}$

ل) $\tan^2 n = \frac{1}{3}$ وقت! $\frac{1}{2}$



$$4 \times 5 \times \sin A \times \frac{1}{2} = 12.5$$

$$\Rightarrow \sin A = \frac{\sqrt{3}}{2} \Rightarrow \hat{A} = 120^\circ \text{ or } 60^\circ$$

$$a^2 = b^2 + c^2 - 2bc \cos A$$

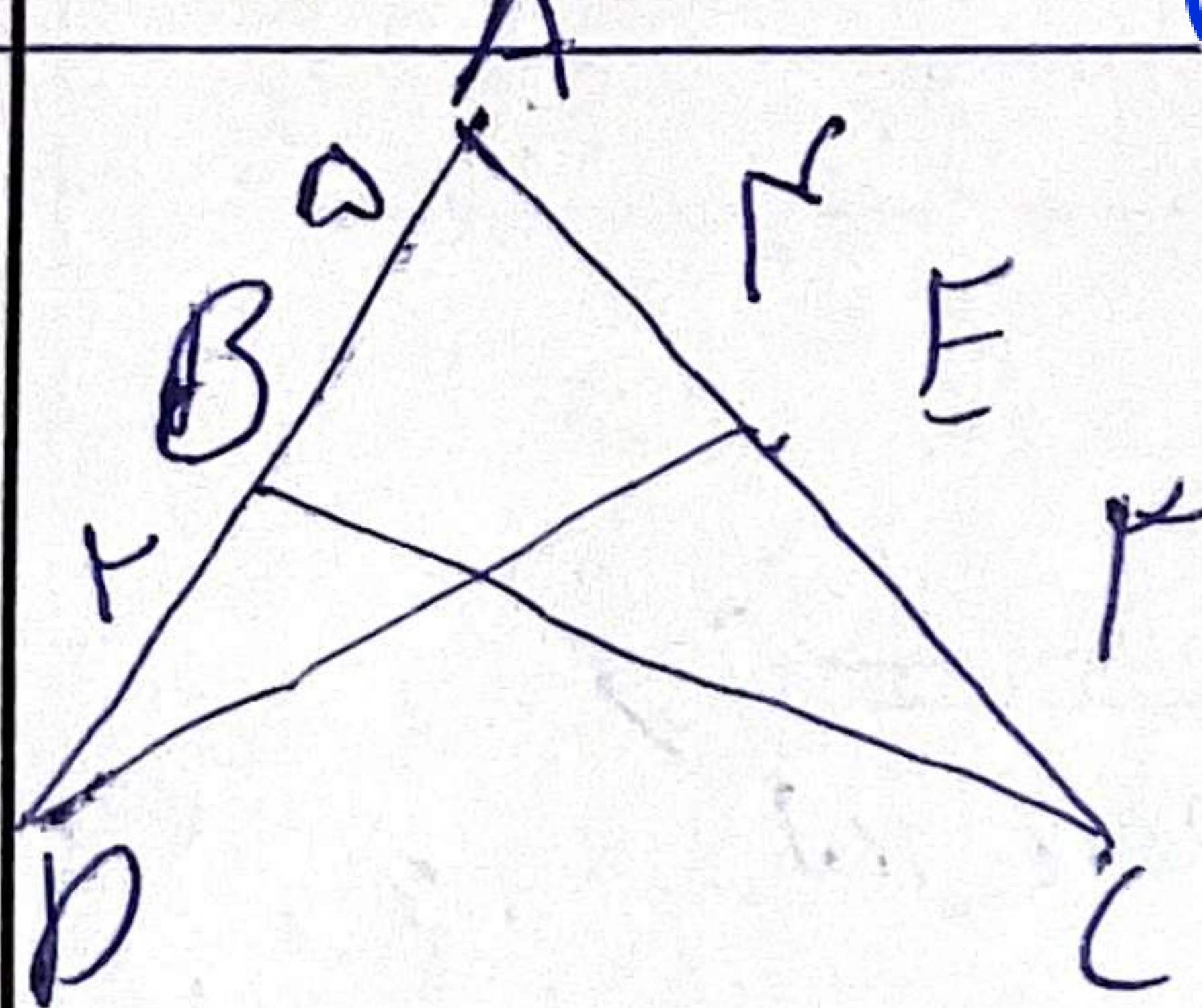
$$\Rightarrow \text{If } A = 60^\circ \Rightarrow 12.5 - \left(\frac{1}{2} \times 4 \times 5 \times \frac{1}{2} \right) = 12.5 - 5\sqrt{3}$$

$$\text{or if } A = 120^\circ \Rightarrow 12.5 - \left(\frac{1}{2} \times 4 \times 5 \times \left(-\frac{1}{2} \right) \right) = 12.5 + 5\sqrt{3}$$

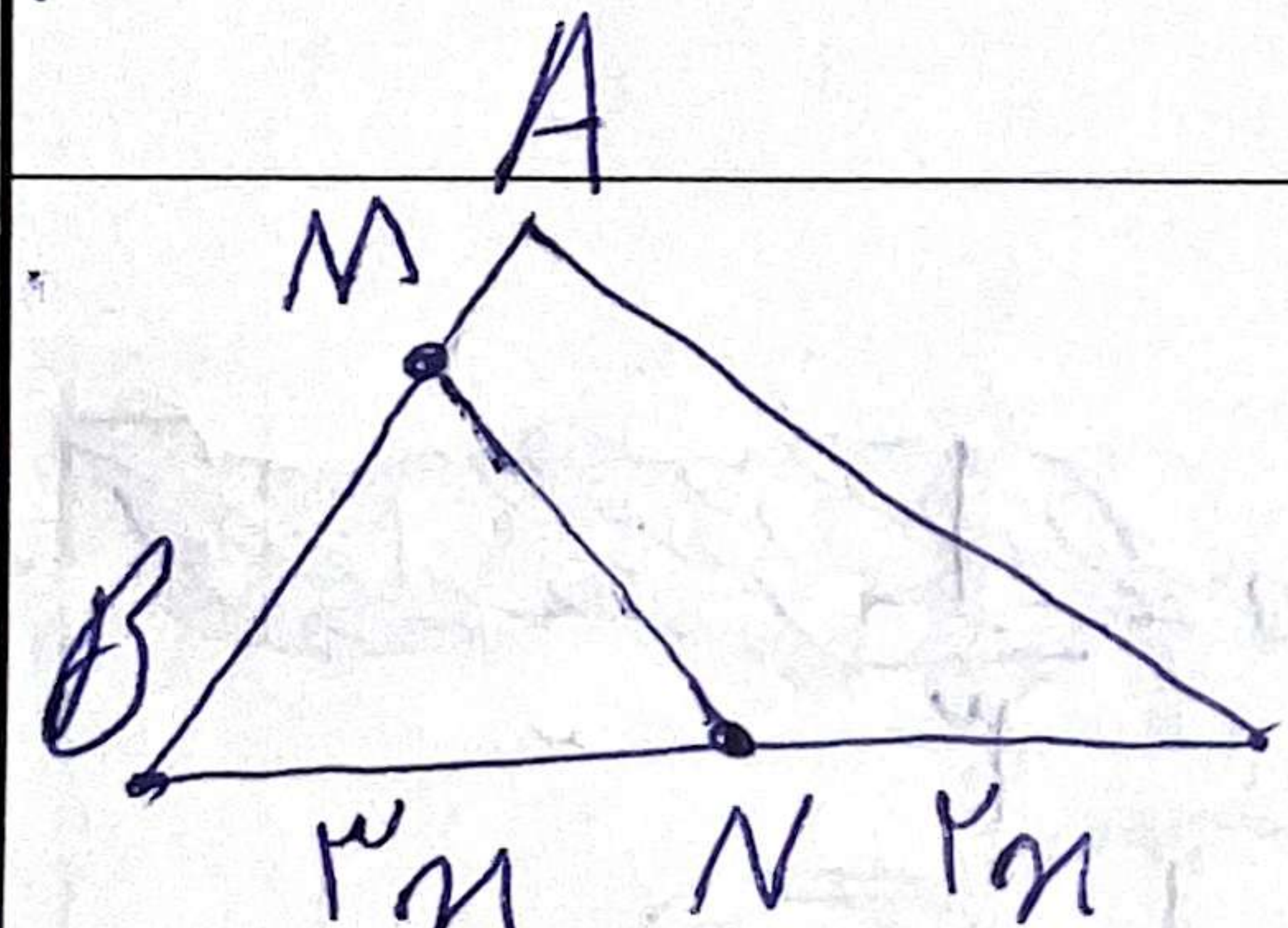
$$\Rightarrow \frac{a_{\max}}{a_{\min}} = \frac{\sqrt{12.5 + 5\sqrt{3}}}{\sqrt{12.5 - 5\sqrt{3}}} \approx 1.732$$



$$S_{ABCD} = (10 \times 10 \times \frac{1}{2} \times \sin 120) \times 2 = 25\sqrt{3}$$



$$S_{ABC} - S_{APE} = \frac{10 \times 10 \sin A}{2} - \frac{10 \times 10 \sin A}{2}$$



$$\frac{10 \times 10 \sin A}{2} \times \sin B = \frac{10 \times 10 \sin B}{2} \times \sin A$$

$$\Rightarrow \frac{BM}{AM} = \frac{2}{3}$$

$$\frac{1}{| \cos a |} - \frac{\sin a}{\cos a} = \frac{1 + \sin a}{| \cos a |}$$

$$\frac{|\sin a|}{\cos a} = -\frac{\sin a}{\cos a}$$

$$\Rightarrow \text{If } \sin a = + \Rightarrow \sin a = -\sin a \Rightarrow X$$

$$\Rightarrow \text{If } \sin a = - \Rightarrow \frac{\sin a}{\cos a} = \frac{-\sin a}{\cos a} \Rightarrow \checkmark \Rightarrow \sin a = -$$

$$\text{If } \cos a = + \Rightarrow \frac{1 - \sin a}{| \cos a |} \Rightarrow X$$

$$\text{If } \cos a = - \Rightarrow \frac{1 + \sin a}{| \cos a |} \Rightarrow \checkmark$$

$$\Rightarrow \cos a = -$$

(۴) از فرمول های زیر استفاده می کنیم

$$\cos(A \pm B)$$

$$= \cos A \cos B \mp \sin A \sin B$$

$$\sin(A \pm B)$$

$$= \sin A \cos B \pm \sin B \cos A$$

الف)

$$\sin^2 a + \cos^2 a = 1, \sin a = \frac{\sqrt{2}}{10}$$

$$\Rightarrow \frac{2}{100} + \cos^2 a = 1 \Rightarrow \cos^2 a = \frac{98}{100} \xrightarrow{\text{جذر می گیریم}} \cos a$$

$$= -\frac{\sqrt{2}}{10} \quad \left| \quad \begin{array}{l} \sin \frac{11\pi}{4} = \sin \frac{3\pi}{4} = \frac{\sqrt{2}}{2} \\ \cos \frac{11\pi}{4} = \cos \frac{3\pi}{4} = -\frac{\sqrt{2}}{2} \end{array} \right.$$

$$\left(-\frac{\sqrt{2}}{2} \times -\frac{\sqrt{2}}{10} \right) - \left(\frac{\sqrt{2}}{2} \times \frac{\sqrt{2}}{10} \right)$$

$$= \frac{2}{20} = \frac{1}{10}$$

ی ز را هم بدست می دهیم:

$$\frac{\sin a}{\cos a} = \frac{1}{\sqrt{2}} \Rightarrow \frac{\sin^2 a}{\cos^2 a} = \frac{1}{2} \Rightarrow 2 \sin^2 a = \cos^2 a$$

فاصله را بدست می دهیم

$$K_9 \sin^2 a = 1 - \sin^2 a \Rightarrow \omega \cdot \sin^2 a = 1$$

$$\Rightarrow \sin^2 a = \frac{1}{\omega_0} \xrightarrow{\text{ریشه بگیر}} \sin a = \frac{\sqrt{\omega_0}}{\omega_0}$$

$$K_9 - K_9 \cos^2 a = \cos^2 a$$

$$\Rightarrow K_9 = \omega \cdot \cos^2 a \Rightarrow \cos^2 a = \frac{K_9}{\omega_0} \xrightarrow{\text{ریشه بگیر}} \cos a = \frac{\sqrt{K_9}}{\omega_0}$$

$$\cos a = \frac{\sqrt{K_9}}{\omega_0}$$

$$\sin \frac{13\pi}{4} = \sin \frac{5\pi}{4} = -\frac{\sqrt{2}}{2}$$

$$\cos \frac{13\pi}{4} = \cos \frac{5\pi}{4} = -\frac{\sqrt{2}}{2}$$

می گذاریم ترمینل:

$$\left(-\frac{\sqrt{2}}{2} \times \frac{\sqrt{K_9}}{\omega_0} \right) + \left(\frac{\sqrt{\omega_0}}{\omega_0} \times \frac{-\sqrt{2}}{2} \right)$$

$$= \frac{-\sqrt{2} \sqrt{K_9}}{2 \omega_0} + \frac{-\sqrt{2} \sqrt{\omega_0}}{2 \omega_0} = \frac{-\sqrt{2} (\sqrt{K_9} + \sqrt{\omega_0})}{2 \omega_0}$$

$$= \frac{-\sqrt{2}}{\omega_0} \quad \checkmark$$