

Задача №2

Решение

Угнеть $OM \parallel AD$.

$M \in CD$

$MH_2 \perp AD$.

$\triangle OMH_2$ - прямоугольный \Rightarrow

$\Rightarrow MH_2 = OM = 3$.

$$\cos \alpha = \frac{3}{5} \Rightarrow \sin \alpha = \sqrt{1 - \cos^2 \alpha} = \sqrt{\frac{5^2 - 3^2}{5^2}} = \frac{4}{5}$$

$$\triangle H_2MD: MD = \frac{MH_2}{\sin \alpha} = \frac{3 \cdot 5}{4}$$

$OM \parallel AD \Rightarrow OM \parallel BC$

$$BC : OM = CD : MD = \frac{AD : OM}{AD} \Rightarrow$$

$$\Rightarrow BC \cdot AD = OM^2 = \left(\frac{CD}{AC} \cdot AD \right)^2$$

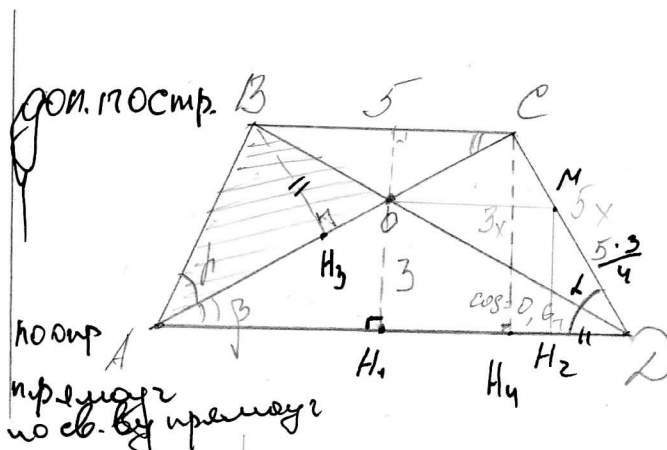
$$\Rightarrow \left(\frac{BC}{BC+AD} \cdot AD \right)^2 = \left(\frac{5}{5+AD} \cdot AD \right)^2 = 5 \cdot AD^2$$

$$(2) \frac{25AD^2}{5+AD} = 5AD^2, \quad \frac{5AD}{5+AD} = 1, \quad 4AD = 5, \quad AD = \frac{5}{4}$$

$$\frac{BC}{OM} = \frac{CD}{MD} = \frac{CD}{CD-CN}$$

$$\frac{5}{OM} = \frac{CD}{5}, \quad OM \cdot CD = 25$$

$$AD : OM = CD : CM = \frac{CD}{CD-MD} = \frac{AD}{OM} = \frac{CD}{CD-5}, \quad AD = \frac{25}{CD-5}$$



$$180 - \beta - \beta - 90 - \beta^2 = 90 - \beta$$