

PROBLEME - TRIUNGIUL DREPTUNGHIC

4/176 cul.

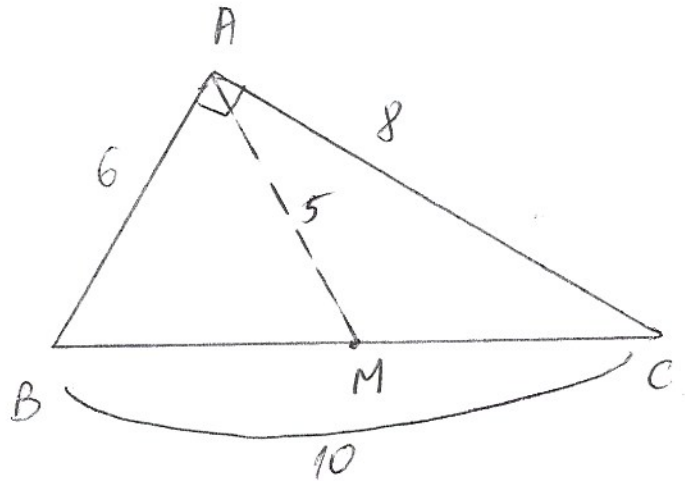
$\text{Ip: } \triangle ABC, m(\hat{A}) = 90^\circ$

$AB = 6 \text{ cm}$

$AC = 8 \text{ cm}$

$AM = \text{mediana}$

$M \in (BC)$



Cl: $AM = ?$

Dem:

In $\triangle ABC, m(\hat{A}) = 90^\circ \xrightarrow{\text{T.P.}} BC^2 = AB^2 + AC^2$

$BC^2 = 6^2 + 8^2$

$BC^2 = 2^2 \cdot (3^2 + 4^2)$

$BC^2 = 2^2 \cdot 5^2 \Rightarrow BC = 2 \cdot 5 = 10 \text{ cm}$

In $\triangle ABC - \text{dr.}$
 $AM = \text{mediana} \Rightarrow$

$\Rightarrow AM = \frac{BC}{2} = \frac{10}{2} = 5 \text{ cm}$

5/176. $\text{Ip: } \triangle ABC$

$m(\hat{A}) = 90^\circ$

$AM = 10 \text{ cm}$

$M \in (BC)$

$BM = CM$

$AB = 12 \text{ cm}$

Cl: $AC = ?$

Dem:

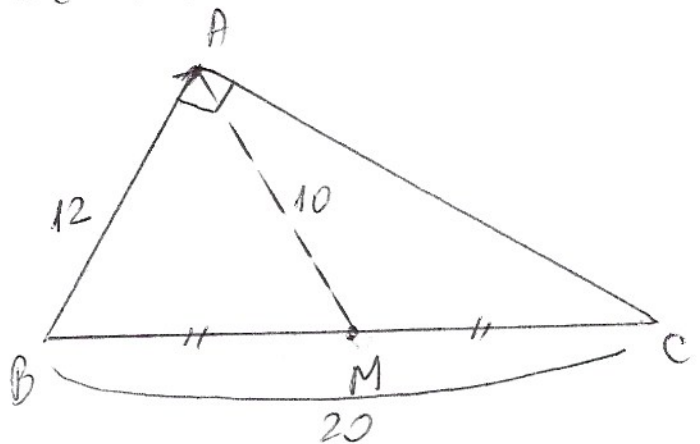
In $\triangle ABC = \text{dr.}$ $\left. \begin{array}{l} BM = MC \Rightarrow AM = \text{mediana} \\ \end{array} \right\} \Rightarrow AM = \frac{BC}{2}$

$\Rightarrow BC = 2 \cdot AM = 2 \cdot 10 = 20 \text{ cm}$

In $\triangle ABC, m(\hat{A}) = 90^\circ \xrightarrow{\text{T.P.}} AC^2 = BC^2 - AB^2$

$AC^2 = 20^2 - 12^2$

$AC^2 = 4^2 \cdot (5^2 - 3^2) = 4^2 \cdot 4^2 \Rightarrow AC = 4 \cdot 4$
 $AC = 16 \text{ cm}$



12/177.

\mathcal{I}_p : $\triangle ABC$

$\{AB, AC, BC\}$ d.p. $\{13, 12, 5\}$

Cl: $\triangle ABC = \text{dr. ?}$

Dem: $\{AB, AC, BC\}$ d.p. $\{13, 12, 5\} \Rightarrow \frac{AB}{13} = \frac{AC}{12} = \frac{BC}{5} = k$

$\Rightarrow AB = 13 \cdot k$

$AC = 12 \cdot k$

$BC = 5 \cdot k, \quad k \in \mathbb{N}^*$

$\Rightarrow AB^2 = (13 \cdot k)^2 = 169k^2$

$AC^2 = (12 \cdot k)^2 = 144k^2$

$BC^2 = (5 \cdot k)^2 = 25k^2$

$\left. \begin{array}{l} \Rightarrow AB^2 = 169k^2 \\ AC^2 = 144k^2 \\ BC^2 = 25k^2 \end{array} \right\} \Rightarrow AC^2 + BC^2 = AB^2 \Rightarrow \triangle ABC = \text{dr. în } C.$

13/177: \mathcal{I}_p : $\triangle ABC = \text{dr.}$, $m(\hat{A}) = 90^\circ$

$AB = 30 \text{ cm}, AC = 40 \text{ cm}.$

a) $BC = ?$

b) $AD \perp BC$, $E = \sin \frac{D}{AB}$, $F = \sin \frac{D}{AC}$

ⓐ $E-A-F = \text{coliniare ?}$

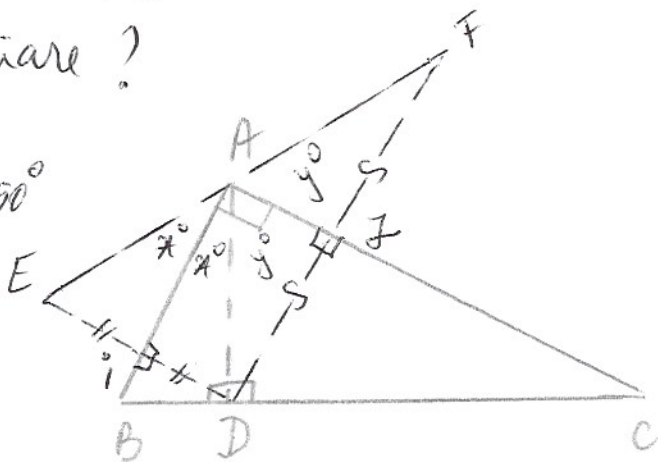
Dem: a) În $\triangle ABC$, $m(\hat{A}) = 90^\circ$

$\text{TP} \Rightarrow BC^2 = AB^2 + AC^2$

$BC^2 = 30^2 + 40^2$

$BC^2 = 10^2 \cdot (3^2 + 4^2)$

$BC^2 = 10^2 \cdot 5^2 \Rightarrow BC = 10 \cdot 5 = 50 \text{ cm}$



b) $AE \cap AB = \{i\}$

$AC \cap AF = \{j\}$

$\text{Sim } E = \sin \frac{D}{AB} \Rightarrow \overset{\circ}{B} = iE \Rightarrow Ai = \text{med} \left. \begin{array}{l} \Rightarrow Ai = h \end{array} \right\} \Rightarrow$

$\Rightarrow Ai = \text{bis în } \triangle AED \Rightarrow$

$\Rightarrow m(\hat{EAB}) = m(\hat{BAD}) = x^\circ.$

$$\text{Din } F = \sin \frac{D}{AC} \Rightarrow DJ = JF \Rightarrow \left. \begin{array}{l} AJ = \text{med} \\ AJ = h \end{array} \right\} \Rightarrow AJ = \text{bis. in } \Delta ABF \Rightarrow$$

$$\Rightarrow m(\widehat{DAJ}) = m(\widehat{FAJ}) = y^\circ$$

$$\Rightarrow m(\widehat{EAF}) = 2 \cdot x^\circ + 2 \cdot y^\circ = 2 \cdot (x^\circ + y^\circ) = 2 \cdot 90^\circ = 180^\circ \Rightarrow$$

$\Rightarrow E-A-F$ - coliniare

TEMA cel. pag 176 / 8, 9, 10, 15.