230 $b = 3\sqrt{3}$, $c = 3$, $\beta = \frac{\pi}{3}$. $\left[\alpha = \frac{\pi}{2}; \gamma = \frac{\pi}{6}; a = 6\right]$

231 $b = 4$, $c = 2\sqrt{2}$, $\gamma = \frac{\pi}{6}$.

$\left[\alpha = \frac{7}{12}\pi, \beta = \frac{\pi}{4}, a = 2(\sqrt{3}+1) \vee \alpha = \frac{\pi}{12}, \beta = \frac{3}{4}\pi, a = 2(\sqrt{3}-1)\right]$

232 $a = 6(\sqrt{2}+1)$, $b = 6 + 3\sqrt{2}$, $\beta = \frac{\pi}{4}$. $\left[\alpha = \frac{\pi}{2}; \gamma = \frac{\pi}{4}; c = 6 + 3\sqrt{2}\right]$

233 $a = 3\sqrt{5}$, $b = 3$, $\cos\alpha = \frac{1}{4}$. $[\beta \simeq 26°; \gamma \simeq 79°; c \simeq 6{,}80]$

234 $a = 2\sqrt{3}$, $b = 3\sqrt{3}$, $\operatorname{sen}\alpha = \frac{2}{3}$ (α acuto). $[\beta = 90°; \gamma \simeq 48°; c = \sqrt{15}]$

Sono noti i tre lati

235 **ESERCIZIO GUIDA**

Risolviamo un triangolo *ABC*, sapendo che:

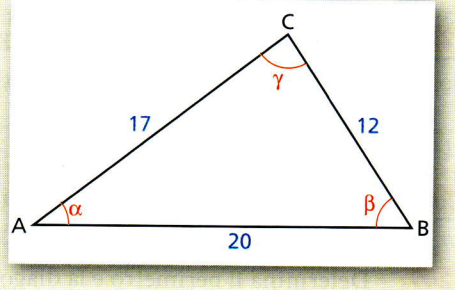
$a = 12, b = 17, c = 20.$

Applichiamo più volte il teorema del coseno:

$$\cos\alpha = \frac{b^2 + c^2 - a^2}{2bc} = \frac{17^2 + 20^2 - 12^2}{2 \cdot 17 \cdot 20} \simeq 0{,}80 \rightarrow \alpha \simeq 36{,}72°;$$

$$\cos\beta = \frac{a^2 + c^2 - b^2}{2ac} = \frac{12^2 + 20^2 - 17^2}{2 \cdot 12 \cdot 20} \simeq 0{,}53 \rightarrow \beta \simeq 57{,}91°;$$

$$\cos\gamma = \frac{a^2 + b^2 - c^2}{2ab} = \frac{12^2 + 17^2 - 20^2}{2 \cdot 12 \cdot 17} \simeq 0{,}08 \rightarrow \gamma \simeq 85{,}36°.$$



Risolvi il triangolo *ABC*, noti gli elementi indicati.

236 $a = 4$, $b = 9$, $c = 12$. $[\alpha \simeq 15°; \beta \simeq 35°; \gamma \simeq 130°]$

237 $a = 20$, $b = 7$, $c = 14$. $[\alpha \simeq 142°; \beta \simeq 12°; \gamma \simeq 26°]$

238 $a = 52$, $b = 48$, $c = 36$. $[\alpha \simeq 75°; \beta \simeq 63°; \gamma \simeq 42°]$

239 $a = 15$, $b = 26$, $c = 40$. $[\alpha \simeq 10°; \beta \simeq 17°; \gamma \simeq 153°]$

240 $a = 4$, $b = 2\sqrt{6}$, $c = 2 + 2\sqrt{3}$. $[45°; 60°; 75°]$

241 $a = 12$, $b = 8$, $c = 4\sqrt{7}$. $[\alpha \simeq 79°; \beta \simeq 41°; \gamma \simeq 60°]$

242 $a = 2\sqrt{3}$, $b = 2\sqrt{2}$, $c = \sqrt{2} + \sqrt{6}$. $\left[\alpha = \frac{\pi}{3}; \beta = \frac{\pi}{4}; \gamma = \frac{5}{12}\pi\right]$