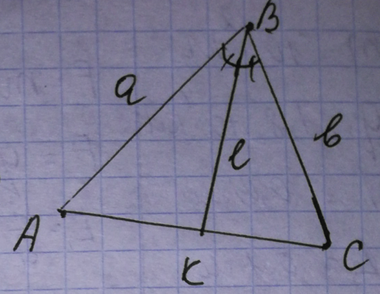
(2) Дано: ΔABC:

$AB = a$, $BC = b$,

BK - бис-са, $BK = l$



Найти: S_{Δ} -?

Решение.

Пусть $\angle ABC = 2\alpha$, тогда

$\angle ABK = \angle KBC = \alpha$

$$S_{ABC} = S_{ABK} + S_{BKC}$$

$$\frac{AB \cdot BC \cdot \sin 2\alpha}{2} = \frac{AB \cdot BK \cdot \sin\alpha}{2} + \frac{BC \cdot BK \cdot \sin\alpha}{2}$$

$$\frac{a \cdot b \cdot 2\sin\alpha \cdot \cos\alpha}{2} = \frac{a \cdot l \cdot \sin\alpha}{2} + \frac{c \cdot l \cdot \sin\alpha}{2}$$

$$2ab \cdot \cos\alpha = al + cl$$

$$\cos\alpha = \frac{al + cl}{2ab} = \frac{l(a+c)}{2ab}$$

$$\sin\alpha = \sqrt{1 - \frac{l^2(a+c)^2}{4a^2b^2}} = \frac{\sqrt{4a^2b^2 - l^2(a+c)^2}}{2ab}$$

$$\sin 2\alpha = 2\sin\alpha \cdot \cos\alpha$$

$$S_{ABC} = \frac{ab \cdot \sin 2\alpha}{2} = \frac{\cancel{ab} \cdot \cancel{2}\sqrt{4a^2b^2 - l^2(a+c)^2}}{\cancel{2}} \cdot$$

$$\cdot \frac{l(a+c)}{\cancel{2ab}} = \boxed{\frac{l(a+c)\sqrt{4a^2b^2 - l^2(a+c)^2}}{2}}$$