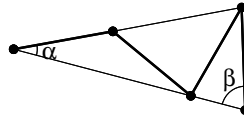


1. In the figure below all thick lines have equal length. Express  $\beta$  in terms of  $\alpha$ .



*Solution:*  $\gamma$  is an exterior angle of  $\triangle ABC$  and so  $\gamma = 2\alpha$ . From  $\triangle BCD$  we have  $\delta = 180^\circ - 2\gamma = 180^\circ - 4\alpha$ . Thus  $\beta = 180^\circ - \alpha - \delta = 180^\circ - \alpha - (180^\circ - 4\alpha) = 3\alpha$ .

