Question 1. *Let A, B, C be points on a circle with center O. If $m\angle BAC = 76$ degrees, what is $m\angle BOC$?*

Solution. The angle $\angle BAC$ is inscribed in the circle, and $\angle BOC$ is the central angle that subtends the same arc as $\angle BAC$. Therefore, the measure of $\angle BOC$ is twice the measure of $\angle BAC$. Thus,

$$m\angle BOC = 2m\angle BAC = 2 \cdot 76^{\circ} = 152^{\circ}.$$

Answer: $m\angle BOC = 152^{\circ}$. □