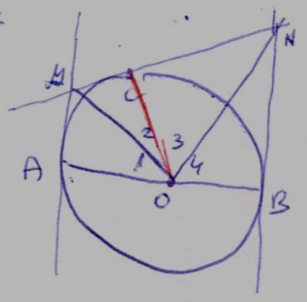
1:88
6




$\measuredangle O_3 = \measuredangle O_4 = \beta$

משולש MCOA
* AOC חוצה את MO
$\measuredangle O_1 = \measuredangle O_2 = \alpha$
משולש CNBO
CO חוצה את NO
$\measuredangle COB$

$\measuredangle AOB = 180 = 2\alpha + 2\beta \rightarrow \alpha + \beta = 90^\circ \rightarrow \measuredangle MON = 90^\circ$

ב. $AM = MC$, $NC = BN$

$MC \cdot NC = CO^2 = r^2$ משפט אוקלידס ב' ב $\triangle MON$

$\Rightarrow AM \cdot BN = r^2$

ג. $\measuredangle C_3 = \frac{1}{2} 60^\circ = 30^\circ$ $\triangle NCO$ משולש $30^\circ, 60^\circ, 90^\circ$

$2x = 2CN = ON$

$4x^2 = x^2 + 1 \rightarrow x = \frac{1}{\sqrt{3}} = CN = BN$

$\triangle AMO$ משולש $30^\circ, 60^\circ, 90^\circ$ $\leftarrow \measuredangle AOM = 60^\circ \leftarrow \measuredangle AOC = 120^\circ$

$2AO = MO = 2 \rightarrow AM = \sqrt{4-1} = \sqrt{3}$

$S_{ABNM} = \frac{AB(AM+BN)}{2} = \frac{2(\frac{1}{\sqrt{3}} + \sqrt{3})}{2} = \frac{1+3}{\sqrt{3}} = \frac{4\sqrt{3}}{3}$