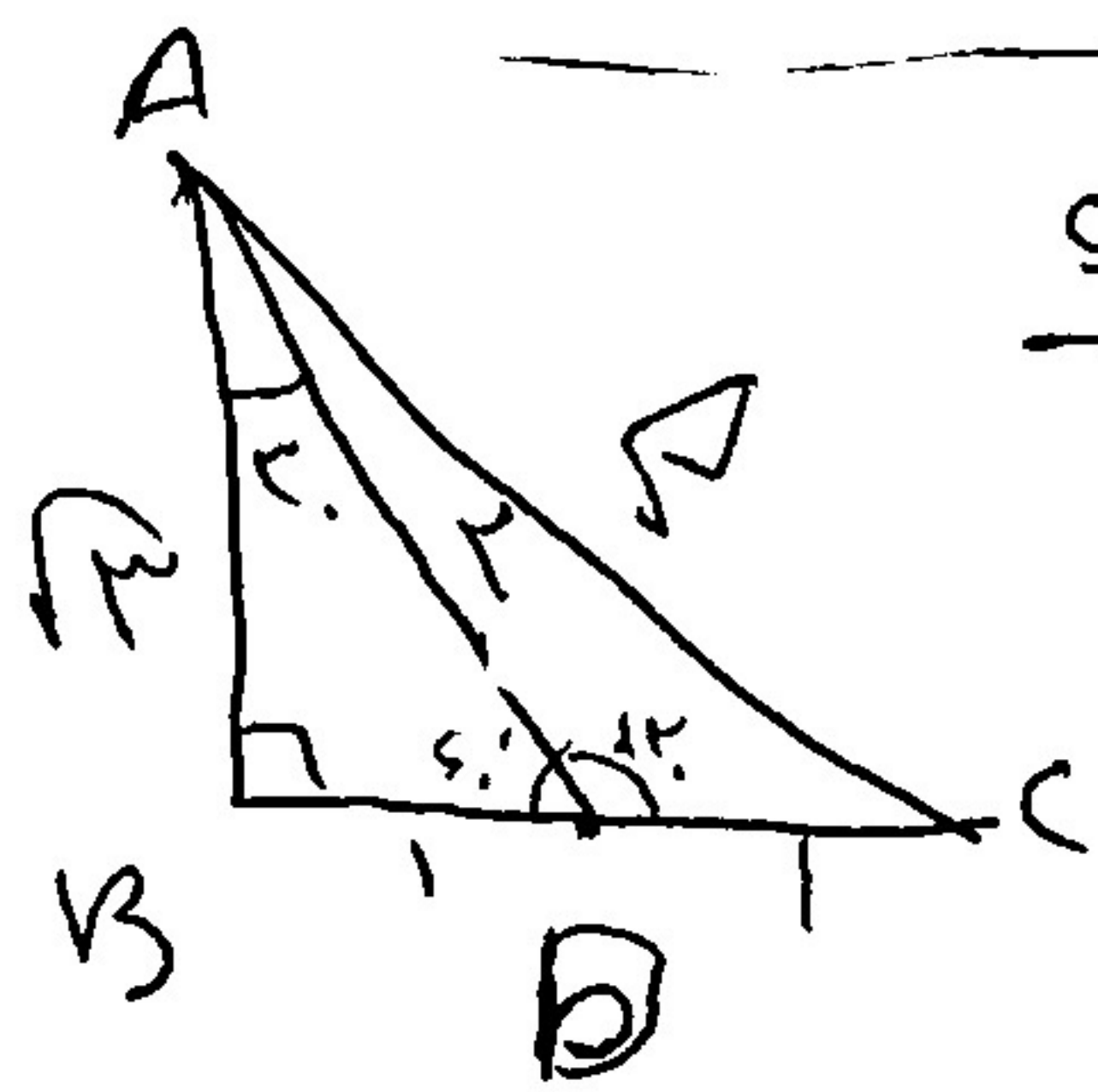


$L = \alpha r \rightarrow 1.0 \times \frac{\pi}{1.0} \times r_A = r_B \times \frac{9\pi}{1.0} \rightarrow \frac{r_A}{r_B} = \frac{9}{1}$

$S \propto r^2 \rightarrow \frac{S_A}{S_B} = \frac{9}{1}$

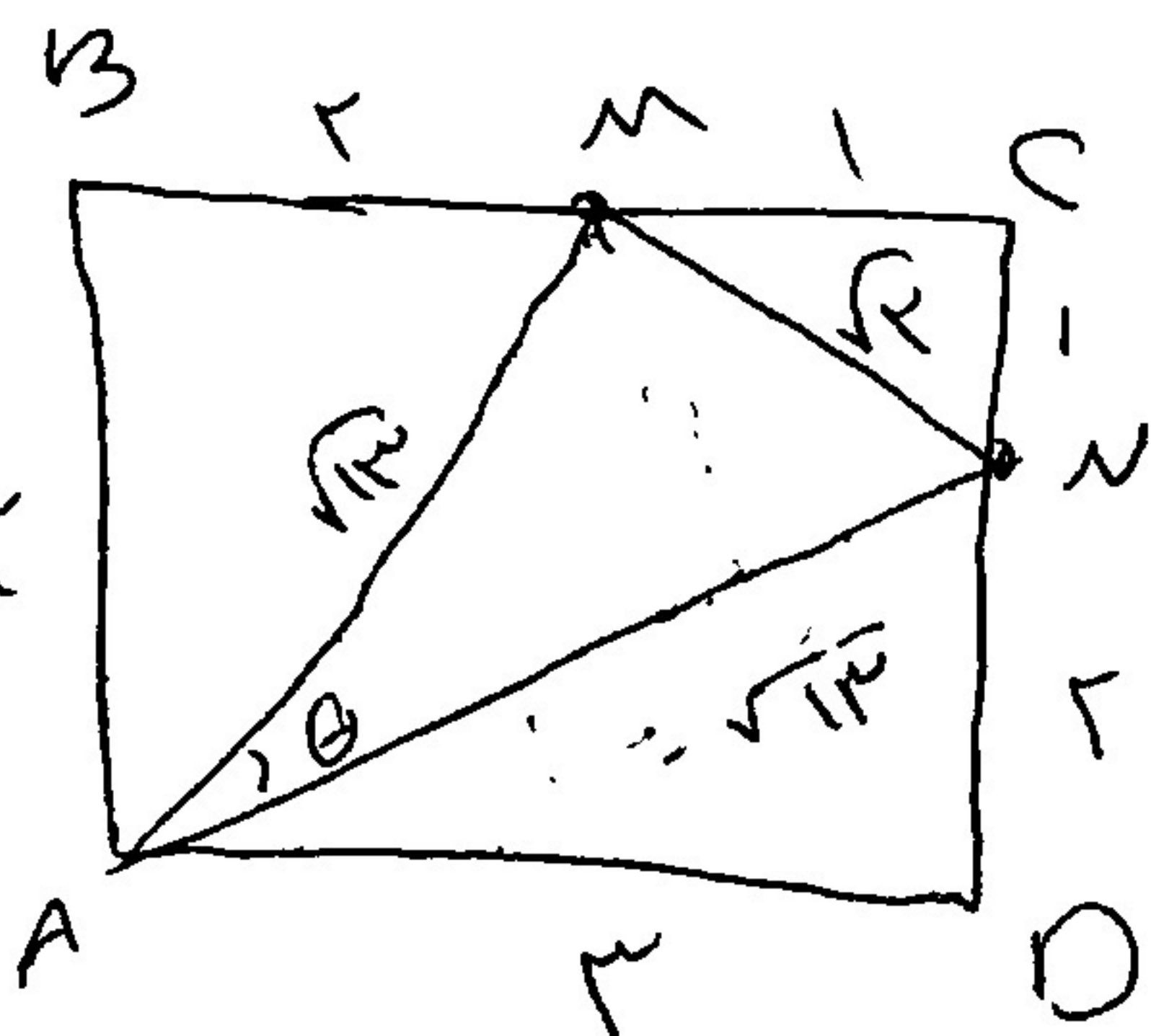


$\sin \angle C = \frac{1}{r} \rightarrow AD = r$

$\sqrt{r} = \frac{1}{r} \times \sqrt{r} \times BC \rightarrow BC = r$

$\frac{\sin C}{r} = \frac{\sin \angle C}{\sqrt{r}} \rightarrow \sin C = \frac{\sqrt{r}}{r}$

$\sin C = \frac{r}{\sqrt{r}} \times \frac{r}{\sqrt{r}} = \frac{r}{\sqrt{r}} \times \frac{r}{\sqrt{r}} = \frac{r}{\sqrt{r}}$



$MN = \sqrt{r}$
 $AM = \sqrt{r} = AN$

$\sqrt{r} + \sqrt{r} = r \rightarrow \sqrt{r} = \frac{r}{2}$

$1^2 + 1^2 - 2 \times \sqrt{r} \times \sqrt{r} \times \cos \theta = r \rightarrow \cos \theta = \frac{1}{2}$
 $\theta = \cos^{-1} \left(\frac{1}{2} \right) = 60^\circ$