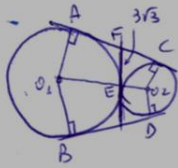
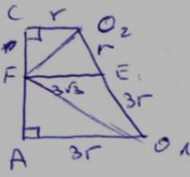


3.94

$\frac{1}{2}$



$O_2E = r \quad O_1E = 3r \quad \mu\mu$



$FC = FE$
 (פירוש) $O_2E = O_2C$ (אנל)

$\sqrt{1/3} \cdot FC = O_2E$

$\alpha = \angle CO_2F \leftarrow \angle O_2 = 2\alpha \quad \mu\mu$

$\angle O_2FE = \angle CFO_2 = 90 - \alpha$

$\angle AO_1F = 90 - \alpha = \angle FO_1A \leftarrow \angle O_1 = 180 - 2\alpha$

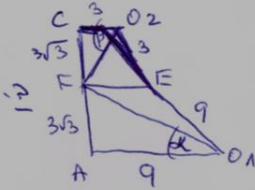
$\angle FEO_1 = \angle AFO_1 = \alpha$

$\angle O_2FO_1 = \angle O_2FE + \angle FEO_1$
 $= 90 - \alpha + \alpha = 90^\circ$

$\triangle O_2F$: $r^2 + (3r)^2 = (FO_2)^2$ נתון גודל
 $r^2 + 27 = (FO_2)^2$

$\triangle FAO_1$: $(3r)^2 + (3r)^2 = (FO_1)^2$
 $9r^2 + 27 = (FO_1)^2$

$\triangle O_2FO_1$: $(O_2F)^2 + (O_1F)^2 = (O_2O_1)^2$
 $r^2 + 27 + r^2 + 27 = (4r)^2$
 $54 = 6r^2$
 $r = 3$



$\angle FO_1A = \alpha \rightarrow \tan \alpha = \frac{3\sqrt{3}}{9} \rightarrow \alpha = 30^\circ$

$\Rightarrow \angle AO_1B = 120^\circ$

$\angle CO_2F = \beta \Rightarrow \tan \beta = \frac{3\sqrt{3}}{3} \rightarrow \beta = 60^\circ$

$\Rightarrow \angle O_2D = 240^\circ$

$12\sqrt{3} = \frac{240}{360} \cdot 2\pi \cdot 9$

$2\sqrt{3} = \frac{120}{360} \cdot 2\pi \cdot 3$

$\sum_{\text{הקטן}} = 12\sqrt{3} + 2\sqrt{3} + 4 \cdot 3\sqrt{3} = 14\sqrt{3} + 12\sqrt{3}$

הקטן $\frac{1}{3}$ $\angle AO_1B$ $\frac{1}{3}$ $\angle O_2D$ " " "

