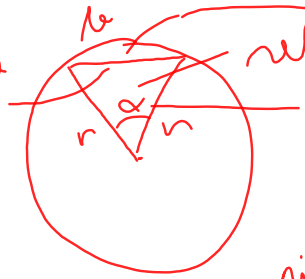
Ympyrän sektori ja segmentti



jänne b

sektori

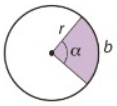
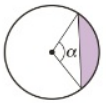
segmentti

keskuskulma α

kaari $b = \frac{\alpha}{360^\circ} \cdot 2\pi r$

pinta-ala $A_s = \frac{\alpha}{360^\circ} \cdot \pi r^2$

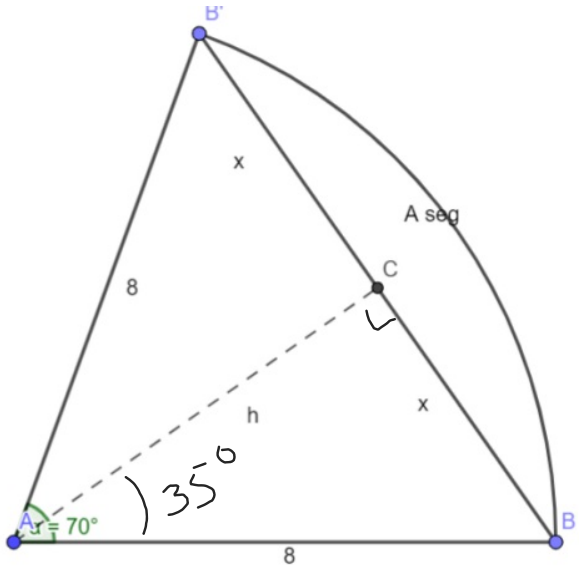
Ympyrä

	kehän pituus	$p = 2\pi r$
	pinta-ala	$A = \pi r^2$
	sektorin kaaren pituus	$b = \frac{\alpha}{360^\circ} 2\pi r$
	sektorin pinta-ala	$A = \frac{\alpha}{360^\circ} \pi r^2 = \frac{br}{2}$
	segmentin pinta-ala = sektorin ala − keskuskolmion ala, jos $0° < \alpha \leq 180°$ = sektorin ala + keskuskolmion ala, jos $180° < \alpha < 360°$	

Esim. Ympyrä, $r = 8$, $\alpha = 70^\circ$

Laske segmentin pinta-ala.

$$A_{seg} = A_s - A_k = \frac{70^\circ}{360^\circ} \cdot \pi \cdot 8^2 - \frac{1}{2} \cdot 8 \cdot 8 \cdot \sin 70^\circ \approx 9{,}0$$



$$\frac{x}{8} = \sin 35^\circ \quad | \cdot 8$$

$$x = 8 \sin 35^\circ$$

$$\frac{h}{8} = \cos 35^\circ \quad | \cdot 8$$

$$h = 8 \cos 35^\circ$$

TAI

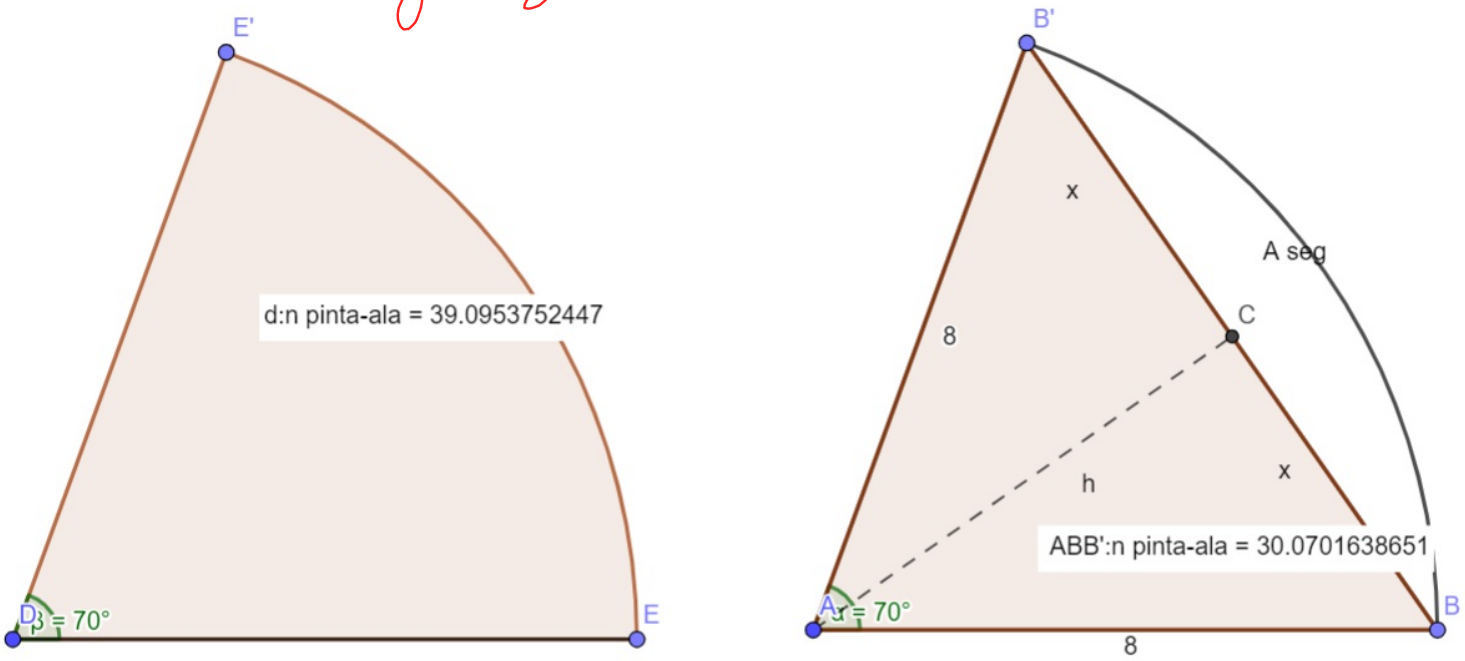
$$A = \frac{2 \times h}{2} = 8 \cdot \sin 35^\circ \cdot 8 \cdot \cos 35^\circ$$

$\frac{70}{360} * \pi * 8^2 - \frac{1}{2} * 8 * 8 * \sin(70)$

9.02521138

Edellinen esimerkki

Geogebralla



$A_{Seg} = 39,095 - 30,070 =$