

4228

(a) Skuggade cirkelns area:

$$A_1 = \pi r^2$$

Kvadratens area:

$$A_2 = (2r) \cdot (2r) = 4r^2$$

Sökta andelen

$$\frac{A_1}{A_2} = \frac{\pi r^2}{4r^2} = \frac{\pi}{4} \approx 0,785$$

$$\underline{\underline{\text{Svar: } \frac{\pi}{4} \approx 0,785}}$$

(b) Halvcirkelns area

$$A_1 = \frac{\pi r^2}{2}$$

Små cirkelns area (radien = $\frac{r}{2}$)

$$A_2 = \pi \left(\frac{r}{2}\right)^2 = \frac{\pi r^2}{4}$$

Skuggade området area

$$A_3 = A_1 - A_2 = \frac{\pi r^2}{2} - \frac{\pi r^2}{4} = \frac{2\pi r^2}{4} - \frac{\pi r^2}{4} = \frac{2\pi r^2 - \pi r^2}{4} = \frac{\pi r^2}{4}$$

Sökta andelen

$$\frac{A_3}{A_1} = \frac{\frac{\pi r^2}{4}}{\frac{\pi r^2}{2}} = \frac{\pi r^2}{4} \cdot \frac{2}{\pi r^2} = \frac{2}{4} = \frac{1}{2}$$

$$\underline{\underline{\text{Svar: } \frac{1}{2}}}$$