

<https://www.wetenschapsforum.nl/viewtopic.php?f=73&t=209952&start=15>

cirkel met straal r

$$x^2 + y^2 = r^2$$

lijn

$$y = a \cdot x + b$$

lijn door punt $(-r, 0)$

$$0 = a \cdot (-r) + b$$

$$b := a \cdot r$$

$$y = a \cdot (x + r)$$

snijpunt lijn met cirkel

$$x^2 + [a \cdot (x + r)]^2 = r^2$$

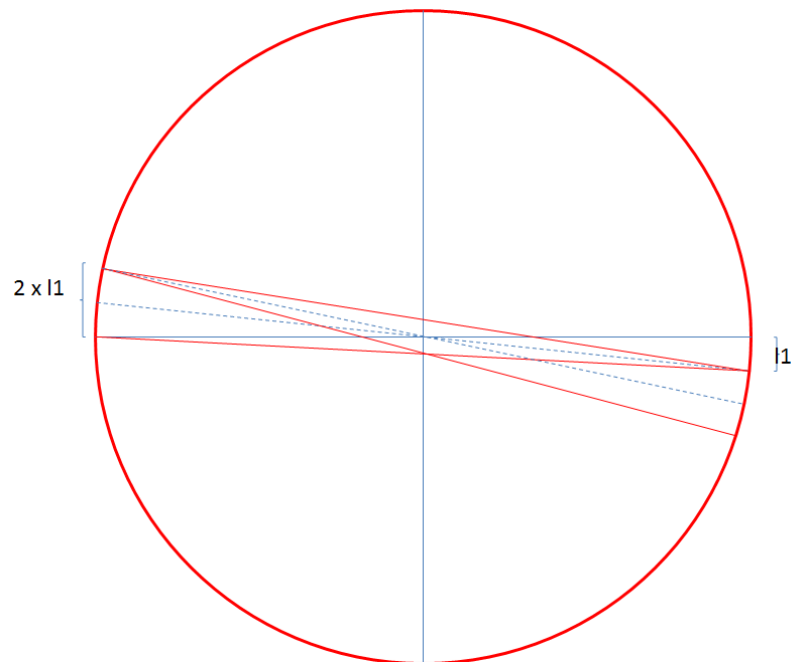
$$\begin{pmatrix} -r \\ \frac{r - a^2 \cdot r}{a^2 + 1} \end{pmatrix}$$

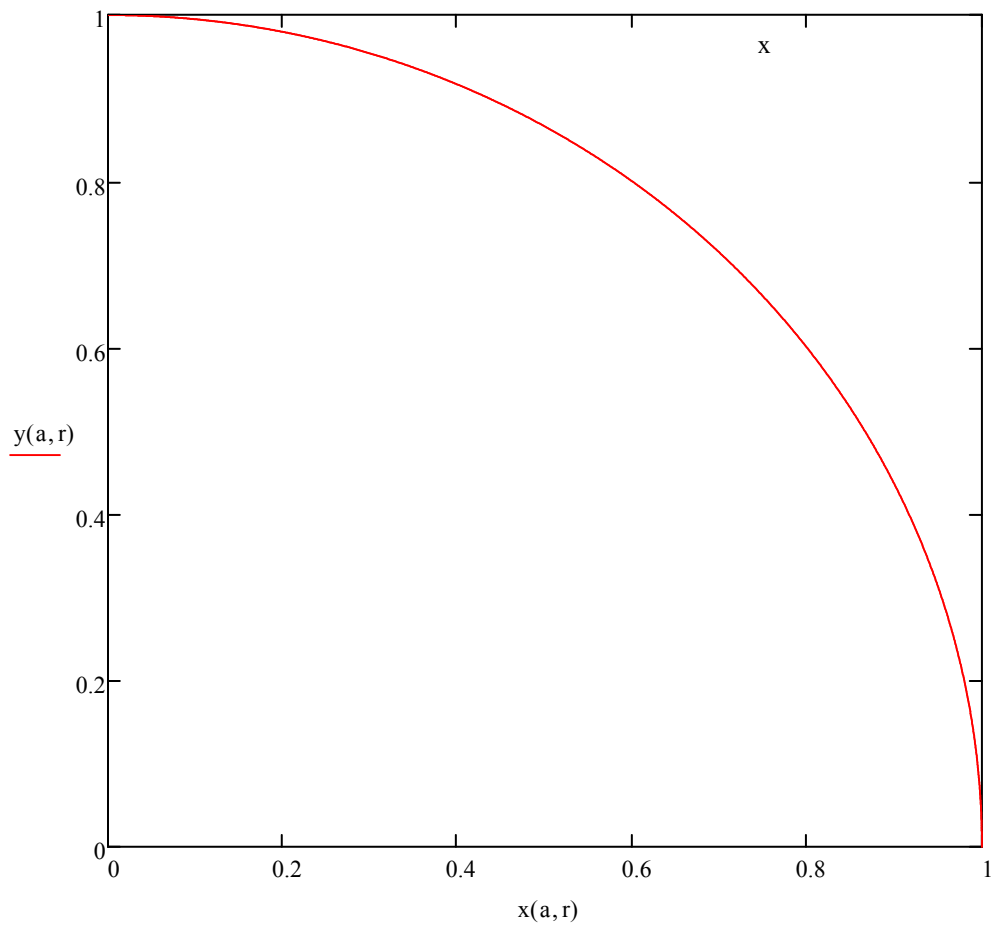
$$x(a, r) := \frac{r - a^2 \cdot r}{a^2 + 1}$$

$$y(a, r) := a \cdot \left(\frac{r - a^2 \cdot r}{a^2 + 1} + r \right)$$

$$a := 0, 0.001 \dots 1$$

$$r := 1$$



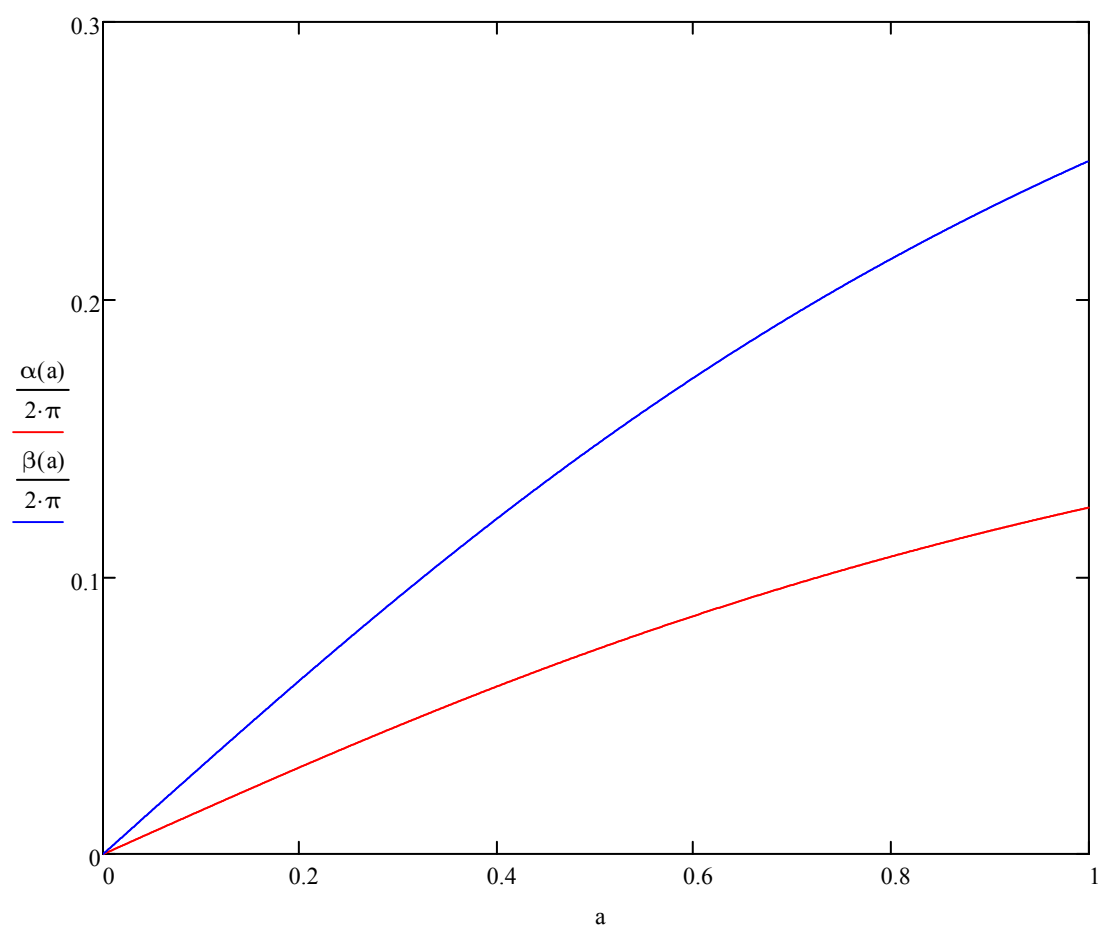


$$\alpha(a) := \operatorname{atan}\left(\frac{y(a, r)}{x(a, r) + r}\right) \quad \text{intree hoek via linkerkant cirkel}$$

$$\beta(a) := \operatorname{atan}\left(\frac{y(a, r)}{x(a, r)}\right) \quad \text{hoek van snijpunt van cirkel met lijn en middelpunt cirkel}$$

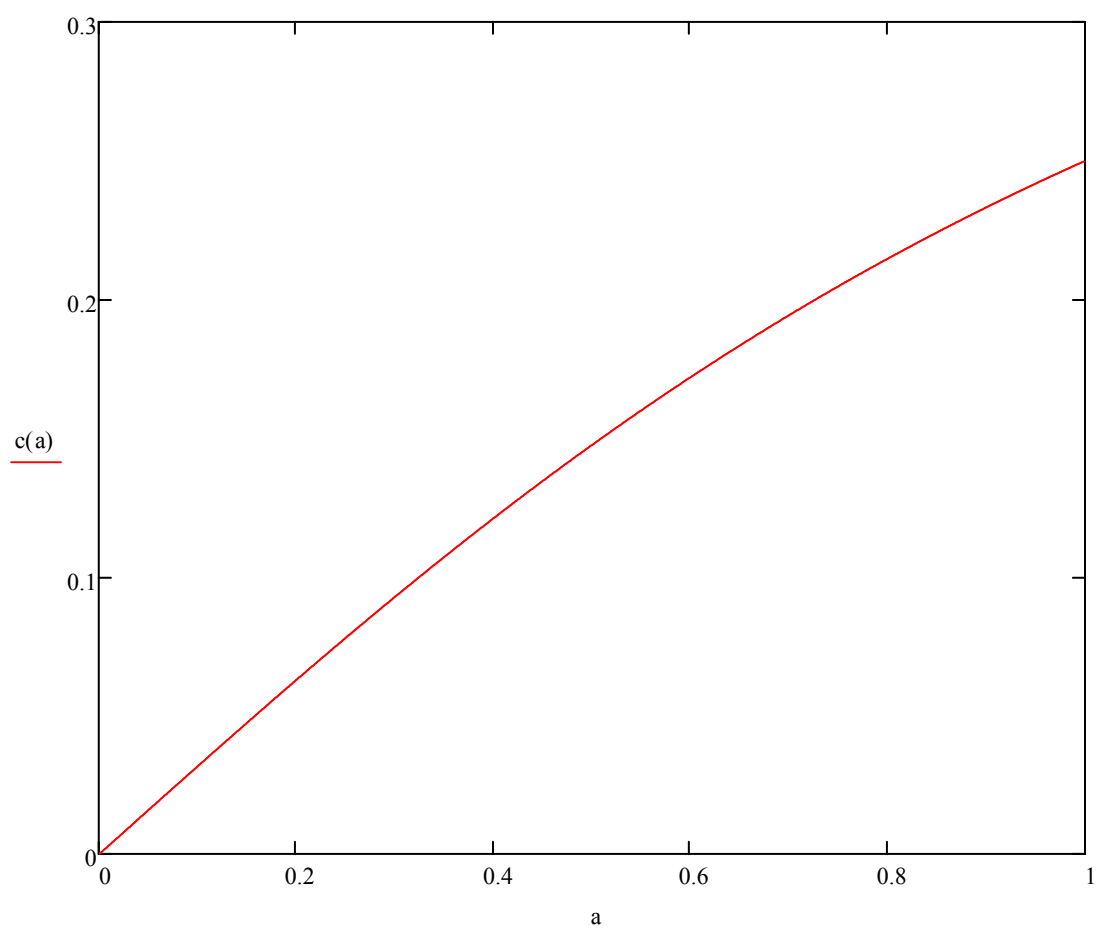
$$L1(a) := \frac{\beta(a)}{2 \cdot \pi} \cdot 2 \cdot \pi \cdot r \quad \text{verhouding cirkelsegment/cirkelomtrek}$$

$$\text{L1(a)} := \beta(a) \cdot r \quad \text{verhouding cirkelsegment/cirkelomtrek}$$

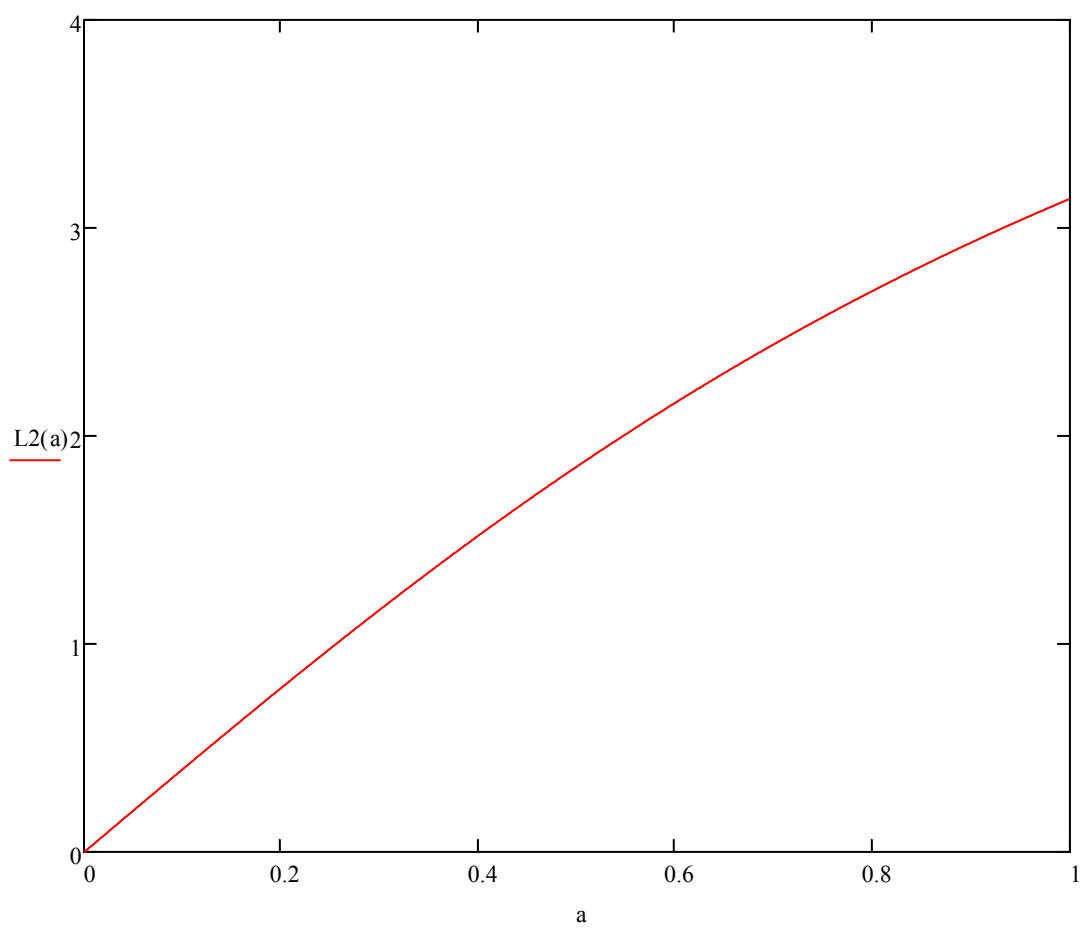


$$c(a) := \frac{L1(a)}{2 \cdot \pi}$$

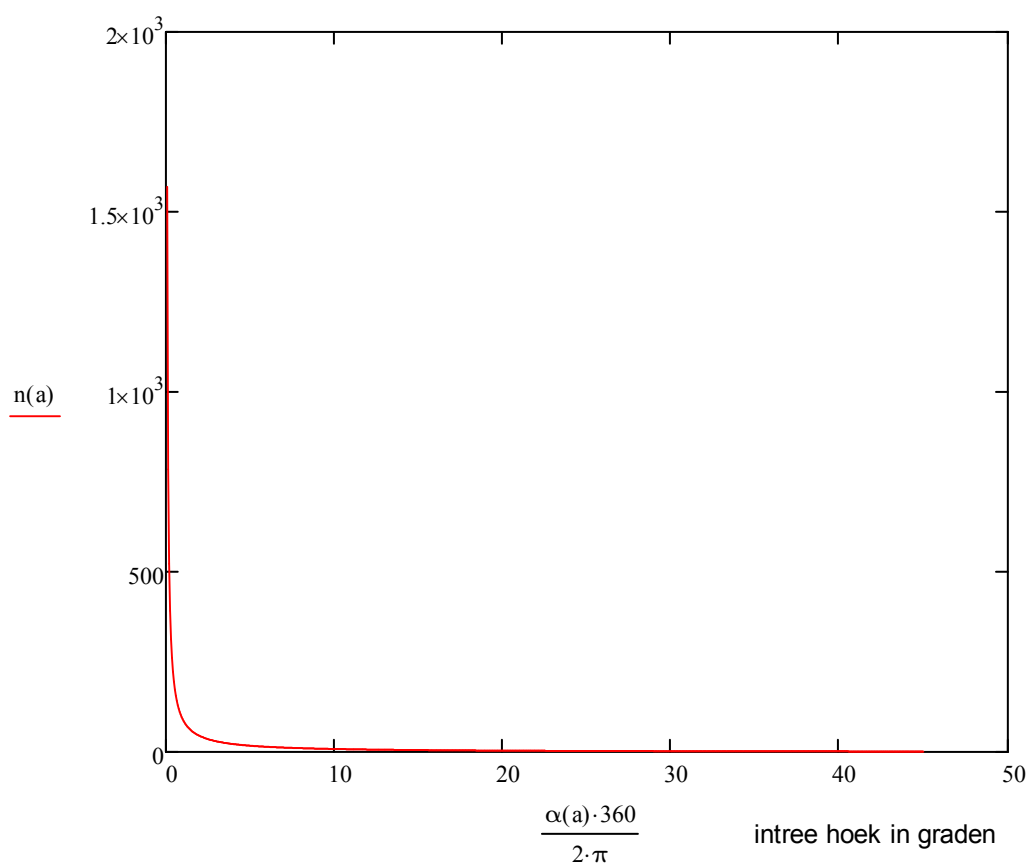
deel van de cirkel afgesneden door intredende lijn



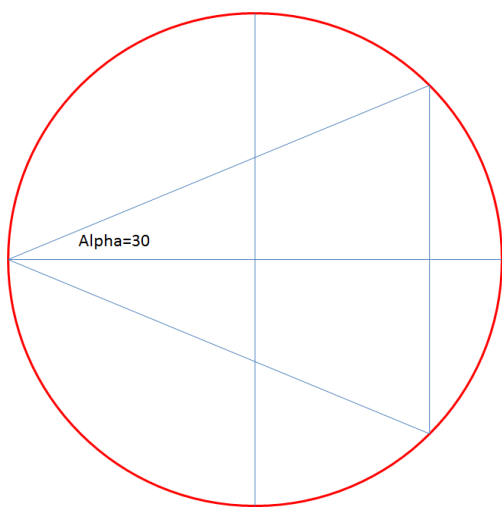
$L2(a) := 2 \cdot L1(a)$ 1e reflectie cirkelsegment



$$n(a) := \frac{2 \cdot \pi}{L2(a)} \quad \text{aantal keren dat segment past op cirkel}$$



$$a := \tan\left(2 \cdot \pi \cdot \frac{30}{360}\right) \quad n(a) = 3 \quad \frac{\alpha(a) \cdot 360}{2 \cdot \pi} = 30$$



$$a := \tan\left(2 \cdot \pi \cdot \frac{45}{360}\right) \quad n(a) = 2 \quad \frac{\alpha(a) \cdot 360}{2 \cdot \pi} = 45$$

