Polygons

Fixed distances d from the center to the vertices (d = radius):

$$\begin{aligned} x_i &= d \cdot \frac{1}{2sin(\frac{\pi}{n})} cos\left(i \cdot \frac{2\pi}{n}\right) \\ y_i &= d \cdot \frac{1}{2sin(\frac{\pi}{n})} sin\left(i \cdot \frac{2\pi}{n}\right) \end{aligned} \tag{1}$$

Fixed distances d between vertices (d = side) :

$$\begin{aligned} x_i &= d \cdot \frac{1}{2sin(\frac{\pi}{n})} cos\left(i \cdot \frac{2\pi}{n}\right) \\ y_i &= d \cdot \frac{1}{2sin(\frac{\pi}{n})} sin\left(i \cdot \frac{2\pi}{n}\right) \end{aligned} \tag{2}$$

where n is the ammount of sides of the polygon, and $i = 0, \ldots, n-1$ are each side