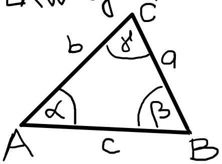
y is the length of $\overline{AC}$

$$\vec{AC} = y\{\mathrm{Cos}[t], \mathrm{Sin}[t]\}$$

$$\measuredangle B = \frac{\pi - \varphi_n}{2}$$

$$\measuredangle C = \pi - \left(t + \frac{\pi - \varphi_n}{2}\right)$$

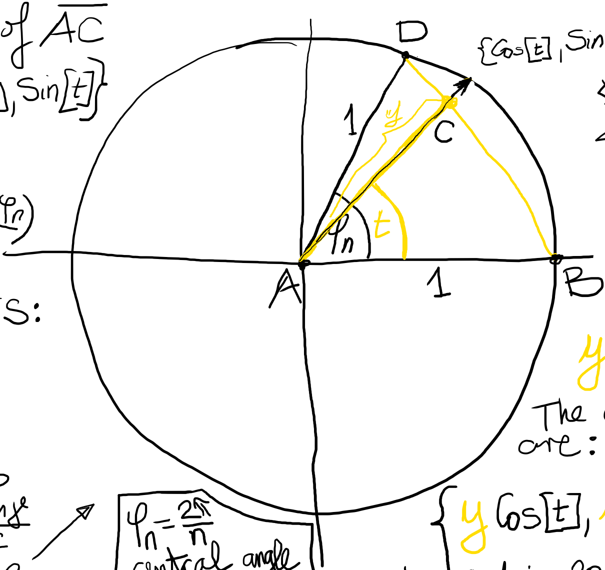
Recall the
LAW of SINES:



$$\frac{\sin\alpha}{a} = \frac{\sin\beta}{b} = \frac{\sin\gamma}{c}$$

apply to ABC

$$\varphi_n = \frac{2\pi}{n}$$
central angle for regular n-gon



$\{\mathrm{Cos}[t], \mathrm{Sin}[t]\}$

$$\measuredangle B = \beta = \frac{\pi - \varphi_n}{2}$$

$$\measuredangle C = \gamma = \frac{\pi}{2} - t + \frac{\varphi_n}{2} = \frac{\pi + \varphi_n}{2} - t$$

Law of Sines

$$\frac{\sin\left[\frac{\pi - \varphi_n}{2}\right]}{y} = \frac{\sin\left[\frac{\pi + \varphi_n}{2} - t\right]}{1}$$

$$y = \frac{\sin\left[\frac{\pi - \varphi_n}{2}\right]}{\sin\left[\frac{\pi + \varphi_n}{2} - t\right]}$$

The coordinates of C are:

$$\{y\,\mathrm{Cos}[t], y\,\mathrm{Sin}[t]\}$$

continued in 20200410_A1P1.nb