Werner_Eの投稿より

正 n 角形の面積

$$Area2(x,y):=\frac{1}{2}\left|\sum_{i=\mathbf{ORIGIN}}^{last(x)-1}\left\|\begin{bmatrix} x_i & y_i \\ x_{i+1} & y_{i+1} \end{bmatrix}\right\|\right|$$

Nice approach! You may consider turning the single calculations into utility functions so you don't have to copy them again and again for different examples. Here's a slightly simpler way to determine the area of a polygon:

$$m:=120 \qquad j:=0,1..m$$

$$i:=0,1..n \qquad x_i:=Re\left(e^{\left(\frac{1\mathrm{i}\cdot i}{n}\cdot 2\cdot\pi\right)}\right) \qquad y_i:=Im\left(e^{\left(\frac{1\mathrm{i}\cdot i}{n}\cdot 2\cdot\pi\right)}\right)$$

$$Area2(x,y)\to 3 \qquad 面積(n):=Area2(x,y)$$

$$n\equiv 12$$

$$面積(n)\to 3=3 \qquad 1\cdot\sin\left(\frac{\pi}{6}\right)\cdot 6=3$$

$$n:=3 \qquad \sqrt{3}\cdot\frac{3}{4}\to\frac{3\cdot\sqrt{3}}{4}$$

$$n:=4 \qquad 1\cdot 1\cdot 2=2$$

$$n:=5 \qquad 1\cdot\sin\left(\frac{2\,\pi}{5}\right)\cdot\frac{5}{2}=2.378$$

$$n:=6 \qquad 1\cdot\sin\left(\frac{2\,\pi}{6}\right)\cdot\frac{6}{2}=2.598$$

$$n:=n \qquad 1\cdot\sin\left(\frac{2\,\pi}{n}\right)\cdot\frac{n}{2}=3$$
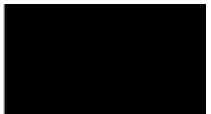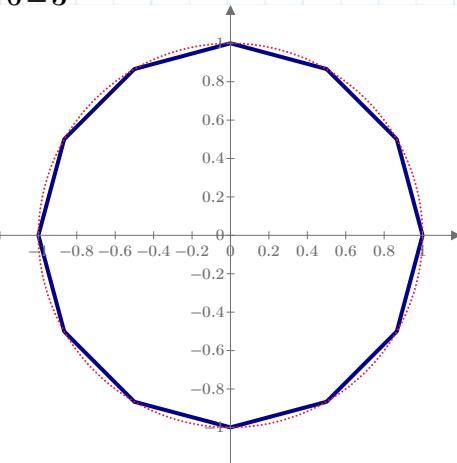
$$m := 6$$

$$1 \cdot \frac{\sqrt{3}}{2} \cdot 3 = 2.598$$

clear(x, y)

$$m := 4 \qquad i := 0, 1 .. m \qquad x_i := Re\left(e^{\frac{1i \cdot i}{m} \cdot 2 \cdot \pi}\right) \qquad y_i := Im\left(e^{\frac{1i \cdot i}{m} \cdot 2 \cdot \pi}\right)$$

$$Area2(x, y) = 2$$

$$\sqrt{2} \cdot \sqrt{2} = 2$$
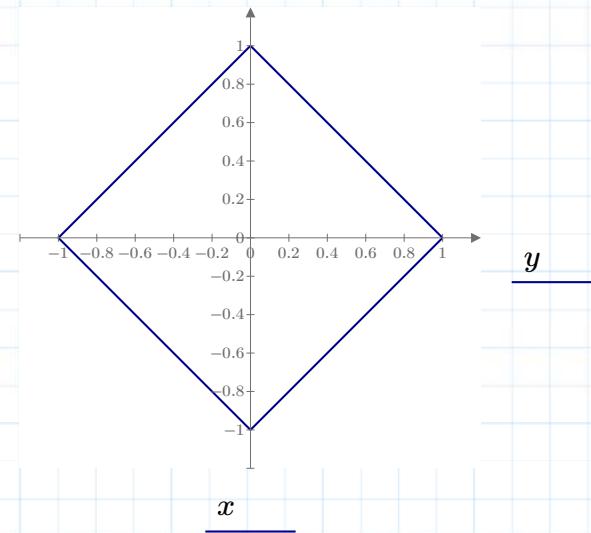
clear(x, y)

$$m := 3 \qquad i := 0, 1 .. m \qquad x_i := Re\left(e^{\frac{1i \cdot i}{m} \cdot 2 \cdot \pi}\right) \qquad y_i := Im\left(e^{\frac{1i \cdot i}{m} \cdot 2 \cdot \pi}\right)$$

$$Area2(x, y) = 1.299$$

$$\sqrt{3} \cdot \frac{1.5}{2} = 1.299$$
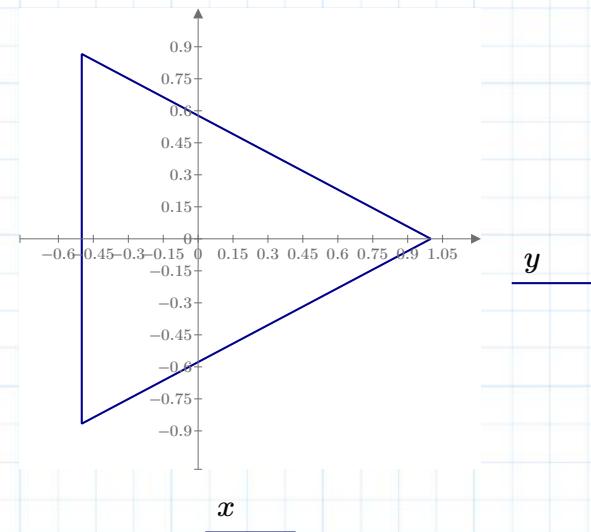
$\mathbf{clear}(x,y)$

$m:=5 \qquad i:=0,1..m \qquad x_i:=Re\left(e^{\frac{1\mathrm{i}\cdot i}{m}\cdot 2\cdot\pi}\right) \qquad y_i:=Im\left(e^{\frac{1\mathrm{i}\cdot i}{m}\cdot 2\cdot\pi}\right)$

$Area2(x,y)=2.378$

$$\frac{1\cdot\sin\left(\dfrac{2\cdot\pi}{5}\right)}{2}\cdot 5=2.378$$

y

x