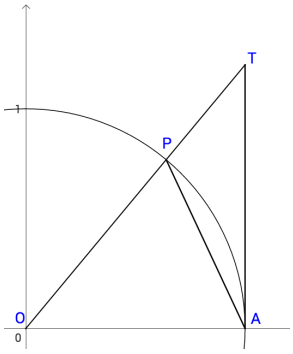
The Squeeze Theorem is another way to compute limits, often employed when limit laws cannot be used.

1a) Explain why you cannot use limit laws to determine the limits $\lim_{t\to 0} t^2 \sin\left(\frac{1}{t}\right)$ and $\lim_{t\to 0} \left|t\cos\left(\frac{1}{t}\right)\right|$?

1b) Explain how you would use the squeeze theorem to compute the limit of $\lim_{t\to 0} t^2 \sin\left(\frac{1}{t}\right)$.

1c) Explain how you would use the squeeze theorem to compute the limit of $\lim_{t\to 0} \left|t\cos\left(\frac{1}{t}\right)\right|$.

In this section, we will compute the limit $\lim_{t\to 0} \dfrac{\sin t}{t}$. In order to do so, we will use a geometrical argument (and the figure below).



2a) The figure above represents the unit circle and a given angle t. Determine and rank the areas of: i) the triangle OPA, ii) the area sector OPA, and iii) the triangle OTA.

2b) How can you use this relation to compute the limit $\lim_{t\to 0} \dfrac{\sin t}{t}$? What limit laws or theorem have you used?

2c) Write a solution detailing how to compute the limit $\lim_{t\to 0} \dfrac{\sin t}{t}$.