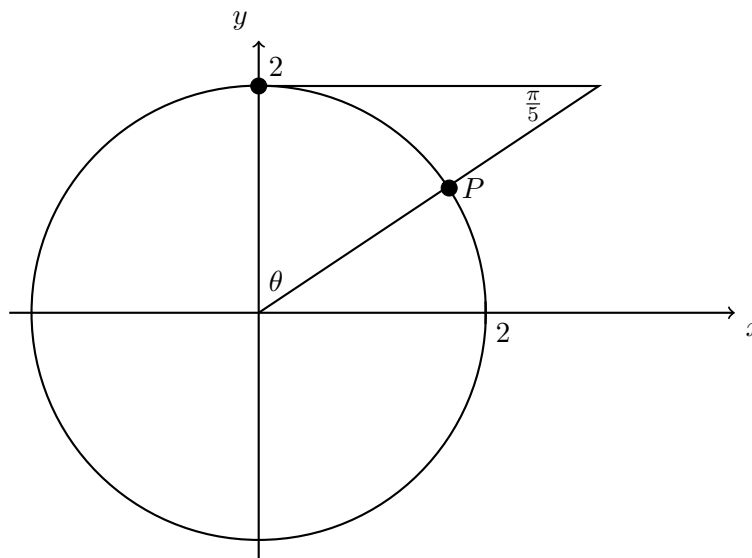


11. [10 points] Consider the figure below in the xy -plane containing a circle of radius two and a right triangle with one angle measuring $\frac{\pi}{5}$ radians.



For all parts of this problem, express your answers in **exact** form.

- a. [2 points] Find θ in radians.

$$\theta = \underline{\hspace{10em}}$$

- b. [2 points] Find the length of the part of the circle **inside** the triangle between the point P and the point $(0, 2)$.

$$\text{The length} = \underline{\hspace{10em}}$$

- c. [2 points] Starting at the point $(2, 0)$ if we rotate 1 radian counterclockwise around the circle, is the resulting point inside the triangle, outside the triangle, or is it impossible to tell? Circle your answer.

inside the triangle
 outside the triangle
 impossible to tell

- d. [4 points] Find the x - and y -coordinates of the point P .

$$P = (\underline{\hspace{2em}}, \underline{\hspace{2em}})$$