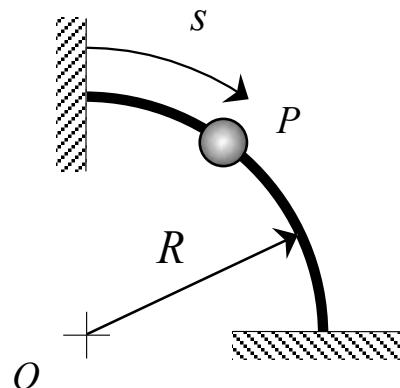


**Homework H1.D**

**Given:** Particle P moves along a circular guide having a radius of  $R$ . The distance  $s$  traveled by P is given as a function of time as:  $s = bte^{-ct}$ , where  $s$  is in millimeters and  $t$  is in seconds.

**Find:** For instant in time of  $t = 0.5$  s:

- show the position of P and the path unit vectors  $\hat{e}_t$  and  $\hat{e}_n$  in a sketch.
- determine the velocity and acceleration of P. Express your answers as vectors in terms of the path unit vectors. Show these two vectors in your sketch.



Use the following parameters in your work:  $R = 200$  mm,  $b = 400$  mm/s and  $c = 0.5$ /s.