Problem H1.B

Given: A particle P travels on a path described by the Cartesian coordinates of $y = cx(b - x)$, where x and y have the units of meters. The x-component of velocity, $\dot{x}$, for P is constant.

Find: For this problem:

(a) Make a sketch of the path of P over the range of $0 < x < b$.

(b) Determine the Cartesian components of the velocity and acceleration of P at $x = 0$. Add a sketch of the velocity and acceleration vectors for P to your path drawn above.

(c) Determine the Cartesian components of the velocity and acceleration of P at $x = \text{b}/2$. Add a sketch of the velocity and acceleration vectors for P to your path drawn above.

Use the following parameters in your analysis: $b = 2$ m, $c = 5/\text{m}$ and $\dot{x} = 4$ m/s.

