1. Find the curvature for
   \[ r(t) = \sin t \mathbf{i} + \cos t \mathbf{j} + t \mathbf{k} \, . \]

2. Find the velocity, acceleration, and speed of a particle with the given position function.
   \[ r(t) = t \mathbf{i} + t^2 \mathbf{j} + 5 \mathbf{k} \, . \]