Full name:_____ **Student number:**_____   **Total:** _____ / *10 pts.*

(1) Find the length of the curve $r(t) = \langle e^t \cos t, e^t \sin t \rangle$ from the point $(1, 0)$ to the point $(-e^\pi, 0)$.

(2) Find a non-zero vector orthogonal to both $r(t) = \langle \cos t, \sin t, t \rangle$ and $r'(t)$.

Solution.