Numbered exercises are from Do Carmo, *Differential Geometry of Curves and Surfaces*.

1. Section 1.2, Exercise 1.
2. Section 1.2, Exercise 3.
4. Find a parameterized curve whose trace is the circle
   \[ x^2 + y^2 = 2. \]
5. Find the singular points of the curve
   \[ \alpha(t) = (t^2, 2t^2) \]
   between \( t = -1 \) and \( t = 2 \). Draw the trace of the curve in this region.
7. Section 1.3, Exercise 2.
8. Find the arc length of the parameterized curve
   \[ \alpha(t) = (e^t, 2e^t, -2e^t) \]
   between \( t = 0 \) and \( t = 1 \).