1. Make a interactive illustration of a particle moving uniformly on a circle and another one chasing it (take the ratio of speeds to be 2) as on http://mathworld.wolfram.com/Pursuit-Curve.html

Show the curvature of the chasing particle at time t. Investigate the position of the first particle when the curvature of the chasing particle changes sign. Compute the total signed curvature of the curve from the starting point to the point where it catches the chased parti-cle.

Evolute and involute?

2. Consider the function $f_c(t) = c \sin(t)$. Use Manipulate to show a family of curves $\alpha : [0, 1] \to \mathbb{R}^2$ with $\alpha(0) = \{0, 0\}$ and such that $\kappa 2[t] = f_c(t)$. Find the value of c for which this curve is (seems?) closed. Calculate the total signed curvature of this closed curve. Find the evolute and the involute of this curve.