

Math 53 Discussion

Practice Problems: Section 10.2

Adapted from Exercise 5) Let $x = t \cos t$, $y = t \sin t$ for $-\pi \leq t \leq \pi$. Where is the self-intersection point of the curve? (Hint: see if you can find an axis of symmetry.) What are the equations of the two tangent lines at the self-intersection point?

Example 2) Consider the cycloid obtained by rolling a circle of radius r : $x = r(\theta - \sin \theta)$, $y = r(1 - \cos \theta)$. Find the slope of the tangent line in terms of θ . Where are the tangents horizontal and vertical?