

Math 442
Winter 2019
Homework 2

Read Section 1-5 and pages 315–317 in do Carmo, and do the following exercises.

1-5: 1, 5, 6, 9, 12, 14.

Hint for Problem 9: To show that any plane curve $\beta : I \rightarrow \mathbb{R}^2$ parametrized by arc length with curvature $k(s)$ is of the form shown, use the fact that there exists a differentiable function $\psi : I \rightarrow \mathbb{R}$ such that $\beta'(s) = (\cos \psi(s), \sin \psi(s))$ for all $s \in I$. (You should think about why this fact is true but you need not include a proof.)

This assignment is due Monday, January 28.