

# Problem Set 1

**All page numbers refer to Edition 4 of the text.**

- 1) On Page 5: Do Problems: 2, 5a, 6a (optional to also do 3, 4)
- 2) On Page 12-14: Do Problems: 1, 2, 3, 4abcd, 6, 7, 11, 15
- 3) On Page 22-29: Do Problems: 1, 2, 3, 4, 13
- 4) Find a parameterization of the surface of tangent lines to the curve in  $\mathbb{R}^3$  given by the image of the map  $\gamma(t) = (t^2, t^3 + 3t, t^4 + 5t^2)$
- 5) Find a parameterization for the threefold of osculating planes to the curve in  $\mathbb{R}^4$  given by the image of the map  $\gamma(t) = (t^2, t^3 + 3t, t^4 + 5t^2, t^5)$