

Homework Set 3

DUE: MAR 13, 2017 (IN CLASS)

1. Shifrin (page 64): Exercise 6
2. Shifrin (page 65): Exercise 12
3. Shifrin (page 65): Exercise 18 (a), (c), (d)
4. Shifrin (page 65): Exercise 19 (b)

HINT: Recall that we showed in class that *smooth, closed* surfaces of revolution in \mathbb{R}^3 with constant curvature $K > 0$ are round spheres. Thus, to find other examples, you should look among surfaces that are *not smooth* or *not closed*; and this is related with the initial conditions imposed on the ODE $f''(u) + Kf(u) = 0$.

5. CHALLENGE PROBLEM (OPTIONAL)

Plot some examples (profile curves are sufficient) from the last exercise, of surfaces of revolution in \mathbb{R}^3 with constant curvature, not globally isometric to a round sphere.