

Exercise Set 4 – Vector Calculus, Frank Thorne (thorne@math.sc.edu)

Due Friday, March 6, 2020

- (1) Ch. 3.1, 4, 17, 27, 29, 30.
- (2) Ch. 3.2, 15, 16. In addition, sketch the curves as best you can, and draw the TNB frames on your graphs for $t = 0$.
- (3) Ch. 3.3, 2-5. In addition, for each vector field:
 - (a) Compute the divergence;
 - (b) Regarding it as a vector field in \mathbb{R}^3 with zero \vec{k} component, compute the curl.
- (4) Ch. 3.3, 8 (in addition, compute the divergence and curl), 18, 19, 24.
- (5) Ch. 3.4, 9, 12, 13.