

**Set 2, Due: February 12, 2024**

1. p.111, 4-1
2. p.112, 4-6
3. Using local coordinates, prove Proposition 4.21 for
  - (1)  $F$  is a smooth function  $u$
  - (2)  $F$  is a vector field
  - (3)  $F$  is a differential one form.
4. p.113, 4-13
5. p.113, 4-14