

### MATE 4052 assignment 3

13. Exercise 1.23.
14. Exercise 1.24.
15. Exercise 1.27.
16. In the proof of theorem 1.5, we used the fact that if the set  $A$  is closed in  $E$ , then the set  $\Phi^{-1}(A)$  is closed in  $R^n$ . Prove this fact. Hint: a set is closed if its complement is open. Note that our  $\Phi$  corresponds to  $\Phi^{-1}$  in Coleman.