MATH 240 Assignment 3, Spring 2016

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Exercises from sections 4.1 and 4.2 are below.
I will post exercises for sections 4.3, 4.4, 4.5 and 4.6 by the end of reading week.

4.1 Exercises 1(b), 2(b), 6, 8, 12, 26, 28, 30.

4.2 Exercises 4, 16, 22, 24, 25, 32, 33.

4.3 TBA

4.4 TBA

4.5 TBA

4.6 TBA

Here is my answer to excercise 16 from 2.2.
We are given that AB is invertible and B is invertible and asked to show A is invertible.

Let $C = AB$. Multiplying both sides on the right by B^{-1} we have

$$CB^{-1} = (AB)B^{-1} = A(BB^{-1}) = AI = A$$

thus

$$A = CB^{-1}.$$

Now we are given that C is invertible and since B is invertible so is B^{-1} by Theorem 6 (a) so A is a product of two invertible matrices. By Theorem 6 (b) a product of two invertible matrices CB^{-1} is invertible hence A is invertible.