Assignment 8

Mandatory questions to be answered orally

From the yellow book:

1. Exercise 4.16
2. Exercise 7.2 b and 7.2 c
3. Exercise 7.4 a (hint: try to get 0 as a limit of irrational numbers)
4. Exercise 8.4
5. Exercise 8.8 b
6. Exercise 8.10

Mandatory question to be answered in writing

1. Prove by induction that
$$\frac{1}{1\cdot 2}+\frac{1}{2\cdot 3}+\frac{1}{3\cdot 4}+\cdots+\frac{1}{(n-1)\cdot n}=1-\frac{1}{n}.$$
Hint: rewrite $\frac{1}{(n-1)n}$ as the difference of inverses of consecutive integers. Such sums are called *telescoping sums*.