

Math 220 – Homework 9

Due Wednesday 04/06 at the beginning of class

PART A

Problems from the textbook:

Section 3.2 # 1(c,e); 2(e); 9; 10, 12(b,c); 13(c,e); 14(a,e); 17

PART B

1. Determine whether the following function is injection. Give a formal proof of your answer.

(a) $f \in F(\mathbb{R})$ defined by $f(x) = 16x^{16} - 14x^{14} - 2x^2 + 1$

(b) $f \in F(\mathbb{Z})$ defined by $f(n) = \begin{cases} n + 2016, & \text{if } n \in \mathbb{E} \\ -n + 2016, & \text{if } n \in \mathbb{O} \end{cases}$

2. Determine whether the function $f \in F(\mathbb{Z})$ defined by $f(n) = \begin{cases} 2n, & \text{if } n \in \mathbb{E} \\ -n + 22, & \text{if } n \in \mathbb{O} \end{cases}$ is surjective.

Give a formal proof of your answer.