

## MATH 102: IDEAS OF MATH

### WORKSHEET 6

*Problem 1.* (1) Prove that  $\mathbb{Q} \subseteq \mathbb{R}$ .  
(2) Prove that  $\mathbb{R} \not\subseteq \mathbb{Q}$ .

*Problem 2.* Prove that,

$$\{x \in \mathbb{R} \mid x^2 \leq 1\} = [-1, 1].$$

*Problem 3.* Prove that for any two sets  $X$  and  $Y$ ,  
$$X \cap Y \subseteq X \cup Y.$$