

Math 231 HW #1

1.1 #9

1.2 #5, #6

1.3 #16

2.1 #9

1.1 #9 If E is quadratic, then E has at most 2 solutions

- All quadratic eqns have at most 2 solns
- Every quadratic equation has at most 2 solns
- If an equation is quadratic, then it has at most 2 solns

1.2 #5

$$A = \{0, 1, 2\}$$

$$B = \{x \in \mathbb{R} \mid -1 \leq x < 3\} = [-1, 3)$$

$$C = \{x \in \mathbb{R} \mid -1 < x < 3\} = (-1, 3)$$

$$D = \{x \in \mathbb{Z} \mid -1 < x < 3\} = \{0, 1, 2\} = A$$

$$E = \{x \in \mathbb{Z}^+ \mid -1 < x < 3\} = \{1, 2\}$$

so $A = D$, and no other equalities

1.2 #6

$$T_n = \{n, n^2\}$$

$$T_2 = \{2, 4\} \quad 2 \text{ elements}$$

$$T_{-3} = \{-3, 9\} \quad 2 \text{ elements}$$

$$T_1 = \{1, 1\} = \{1\} \quad 1 \text{ element}$$

$$T_0 = \{0, 0\} = \{0\} \quad 1 \text{ element}$$

1.3 # 16

$(x,y) \in R \iff y_x \in Z$

$$s. R = \{ (2,6), (3,6), (2,8), (4,8), (2,10) \}$$

2.1 # 9

$(n \vee k) \wedge \sim (n \wedge k)$