

Quiz #1

Monday, June 6 2016

NAME: _____

Please write clearly and properly.

Problem	Grade
1	
2	
3	
Total	

Problem 1. Describe the following sets extensionally (by listing their elements within braces). *No explanations are required.*

- (1) $\{0, 2, 4, 6\} \cup \emptyset$
- (2) $\{0, \pi, -\frac{1}{7}, \heartsuit\} - \mathbb{Q}$
- (3) $\{1, -2, \sqrt{2}\} \cap \mathbb{Q}^+$
- (4) $\{x \in \mathbb{Z} : 2x^2 + 3x - 2 = 0\}$
- (5) $\{x^3, x \in \{n \in \mathbb{N} : n < 4\}\}$
- (6) $\mathcal{P}(\{0, \{4\}, \alpha\})$
- (7) $\{0, 1\}^3$
- (8) $\{0, \emptyset\} \times \{\{0\}\}$

Problem 2. Find all partitions of the set $\{0, 1, 2\}$.

Problem 3. True or False? *No explanations are required.*

- (1) $(A \cup B) \cap C = (A \cap C) \cup (B \cap C)$ for any sets A , B and C .
- (2) $(1, -1, 3) \in \mathbb{Z}^3$.
- (3) $\mathbb{N} \subseteq \mathbb{R}^+$.
- (4) Let $A_n = \left[\frac{1}{n}, \frac{1}{n+1}\right]$. Then $\bigcap_{n \in \mathbb{N}} A_n = \emptyset$.
- (5) Let $V_x = \left[\frac{1}{x}, x\right]$ for $x \in \mathbb{R}^+$. Then $\bigcup_{x \in [1, +\infty)} V_x = \mathbb{R}$.