Name: _____ CompID: _____

CS 2102 - DMT1 - Spring 2020 — Luther Tychonievich
Administered in class friday february 21, 2020

Quiz 05

Consider the following sets: $A = \{1, 2, 4\}$, $B = \{2, 3, 5\}$, $C = \mathcal{P}(\{3, 4\})$

problem 1 *Show all members of each set*

1. $\{\{\}, \{3\}, \{4\}, \{3, 4\}\}$ $= C$
2. $\{1, 2, 3, 4, 5\}$ $= A \cup B$
3. $\{2\}$ $= A \cap B$
4. $\{1, 2\}$ $= A \setminus B$
5. $\{\{3\}\}$ $= \mathcal{P}(B) \cap C$
6. $\{1, 2\}$ $= \{x \mid (x \in \mathbb{N}) \wedge (2x \in A)\}$
7. $\{2\}$ $= \{x \mid (2x \in A) \wedge (x \in B)\}$
8. $\{\{4, 1\}, \{4, 2\}\}$ $= \Big\{\{a, b\} \;\Big|\; (a \in A) \wedge (b \in B) \wedge (a > b)\Big\}$

problem 2 *Answer each question*

9. 4 $= \Big|\{1, \{2, 3\}, 4\}\Big|$
10. 8 $= |\mathcal{P}(A)|$
11. 16 $= \Big|\mathcal{P}\Big(\mathcal{P}(\{1, 2\})\Big)\Big|$
12. $\bot$ $= 3 \in C$
13. $\top$ $= \{3\} \in C$
14. $\bot$ $= \{\{3\}\} \in C$