Math 301
Quiz 9

10 points possible.

1. (3 pts.) Let $B = \{3, 4\}$. Then exactly three of the following statements are true. Which are true?

(a) $3 \in B$ (b) $3 \subseteq B$ (c) $3 \in \mathcal{P}(B)$ (d) $3 \subseteq \mathcal{P}(B)$ (e) $\{3\} \in \mathcal{P}(B)$

(f) $\{3\} \subseteq \mathcal{P}(B)$ (g) $\{\{3\}\} \in \mathcal{P}(B)$ (h) $\{\{3\}\} \subseteq \mathcal{P}(B)$

2. (1 pt.) Is $\{\{a, d, e\}, \{b, c\}, \{f\}\}$ a partition of $\{a, b, c, d, e, f\}$?

3. (1 pt.) If $A = \{a, b, c\}$ and $B = \{3, 4\}$, how many elements are in $\mathcal{P}(A \times B)$?

4. (5 pts.) Suppose that on a true/false exam you have no idea at all about the answers to three questions. You choose answers randomly and therefore have a 50–50 chance of being correct on any one question. Let CCW indicate that you were correct on the first two questions and wrong on the third, let WCW indicate that you were wrong on the first and third questions and correct on the second, and so forth.

(a) List the elements in the sample space whose outcomes are all possible sequences of correct and incorrect responses on your part.

(b) Write the following event as a set. Then find its probability.

The event that at least two answers are correct.