

Math 200 - Quiz 3

February 23, 2011

Name key

Score _____

Show all work to receive full credit. Supply explanations when necessary.

1. (4 points) Let $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$, $A = \{2, 3, 5, 7\}$, $B = \{2, 4, 6, 8\}$, and $C = \{1, 5, 10\}$. Determine each of the following.

(a) $B \cup C = \{2, 4, 6, 8, 1, 5, 10\}$

(b) $\bar{A} = \{1, 4, 6, 8, 9, 10\}$

(c) $A \cap B = \{2\}$

(d) $A \cap C \cap B = \emptyset$

(e) $\overline{A \cup C} = \overline{A \cup C} = \{1, 2, 3, 5, 7, 10\} \Rightarrow \overline{A \cup C} = \{4, 6, 8, 9\}$

(f) $C \cup \bar{C} = U = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$

(g) $n(A \cup U) = n(U) = 10$

$$A \cup U = U$$

- (h) Give an example of a set D such that A and D are disjoint.

$$D = \{1, 10\}$$

$$A \cap D = \emptyset$$

2. (1 point) Shade the region of a two-set Venn diagram that corresponds to $A \cap \bar{B}$.

