

Math 112 - Quiz 3

September 8, 2016

Name Key

Score _____

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

1. (5 points) Let $A = \{1, 2, 3, 4\}$ and $B = \{2, 4, 6, 8\}$.

(a) Determine the set $A \cap B$.

$$\{2, 4\}$$

(b) Determine the set $A - B$.

$$\{1, 3\}$$

(c) Determine $n(A \times B)$.

$$A \times B = \{(1, 2), (1, 4), \dots, (4, 8)\} \quad n(A \times B) = 16$$

(d) List two elements of $B \times A$ that are not elements of $A \times B$.

$$(8, 4) \notin (6, 4)$$

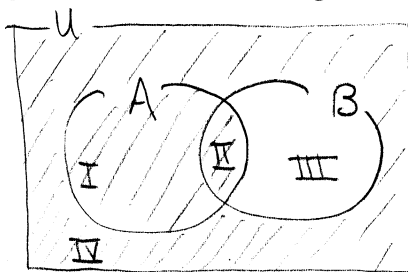
(e) Determine the set $B \cup \emptyset$.

$$B \text{ or } \{2, 4, 6, 8\}$$

2. (3 points) Sketch a two-set Venn diagram and shade the region corresponding to $(A' \cap B)'$.

$$\{III, IV\} \cap \{II, III\} = \{III\}$$

$$\{III\}' = \{I, II, IV\}$$



3. (2 points) Sketch a three-set Venn diagram and shade the region corresponding to $(A \cup B) \cap C$.

$$\{I, II, III, IV, V, VI\}$$

$$\cap \{IV, V, VI, VII\}$$

$$= \{IV, V, VI\}$$

