CSE 211: Discrete Mathematics (Due: 06/10/22)

Problem Session #1

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| Problem 1: Sets | (0 points)

List the members of these sets.

(a) $\{x \mid x$ is a real number such that $x^2 = 1\}$

(b) $\{x \mid x$ is a positive integer less than 12$\}$

(c) $\{x \mid x$ is the square of an integer and $x < 100\}$

(d) $\{x \mid x$ is an integer such that $x^2 = 2\}$

| Problem 2: Sets | (0 points)

Determine whether each of these statements is true or false.

(a) $0 \in \emptyset$

(b) $\emptyset \in \{0\}$

(c) $\{0\} \subset \emptyset$

(d) $\emptyset \subset \{0\}$

(e) $\{0\} \in \{0\}$

(f) $\{0\} \subset \{0\}$

(g) $\{\emptyset\} \subseteq \{\emptyset\}$

(h) $\{0\} \in \{\{0\}\}$

| Problem 3: Cartesian Product of Sets | (0 points)

Let A = {a, b, c }, B = {x, y}, and C = { 0, 1}. Find

(a) $A \times B \times C$.

(b) $C \times B \times A$.

(c) $C \times A \times B$.

(d) $B \times B \times B$.

Problem 4: Set Operations (0 points)

Let A, B, and C be sets. Show that

(a) $(A \cup B) \subseteq (A \cup B \cup C)$.

(b) $(A \cap B \cap C) \subseteq (A \cap B)$.

(c) $(A - B) - C \subseteq A - C$.

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