

Owen Trueblood

Problem Set 2 for 6.042

Problem 4

a) $(X = \emptyset) \iff \forall z. z \notin X$

b) $(X = \{y, z\}) \iff \forall w. (w \in X \text{ IFF } w \in y \text{ OR } w \in z)$

c) $\forall z. (z \in y \rightarrow z \in X) \iff X \subseteq y$

d) $(X = y \cup z) \iff \forall w. (w \in X \text{ IFF } w \in y \text{ OR } w \in z)$

e) $(X = y - z) \iff \forall w. (w \in X \text{ IFF } (w \in y \text{ AND NOT } (w \in z)))$

f) $(X = \text{pow}(y)) \iff \forall w. (w \in X \text{ IFF } w \subseteq y)$

g) $(X = \bigcup_{z \in y} z) \iff \forall w. (w \in X \text{ IFF } w \in y)$

COLLABORATION: On problem 4 I collaborated with no one, and received help from no one.