Solution

name

1. (4 pts) a. First introduce two appropriate predicates, W(x) and J(x), then add quantifier(s) **as needed** to express the given statements. Assume the domain for W and J is all people.

W(x): x is a web developer

J(x): x knows Javascript

a. Isla is a web developer.

$$W(Isla)$$

b. Not everyone knows Javascript.

$$\neg \forall x \, J(x)$$

c. All web developers know Javascript.

$$\forall x \left(W(x) \rightarrow J(x) \right)$$

2. (4 pts) Introduce predicates and use quantifiers to express the following statements in predicate logic:

Predicate and domain: $F(x,y):$ x can fool y.

a. Everybody can fool Todd.

$$\forall x \, F(x, Todd)$$

b. Nobody can fool everybody.

$$\neg \exists x \, \forall y \, F(x,y)$$

c. There is someone whom Lois cannot fool.

$$\exists x \, \neg F(Lois, x)$$