

## Section 1.4

## Practice Problems

1. Let  $P(x)$  be the statement " $x=x^2$ ". If the domain consists of integers, what are the truth values?

a)  $P(0)$      T

b)  $P(1)$      T

c)  $P(2)$      F

d)  $P(-1)$     T

e)  $\exists xP(x)$     T

f)  $\forall xP(x)$     F

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2. Let  $C(x)$ : “ $x$  is a comedian”, and  $F(x)$ : “ $x$  is funny”, and the domain consists of all people. Translate the following quantifications into English:

a)  $\forall x (C(x) \rightarrow F(x))$

“If a person is a comedian, then he/she is funny”

b)  $\exists x (C(x) \rightarrow F(x))$

“There exists a person, such that if he/she is a comedian then he/she is funny”

c)  $\forall x (C(x) \wedge F(x))$

“Every person is a funny comedian”

d)  $\exists x (C(x) \wedge F(x))$

“There exists a comedian who is funny”