PROBLEM 1  Symbolizing

For each of the following, convert from text to symbolic logic. The first one is done for you.

• No G are F. All H are G. So: No H are F
  \[ \exists x . G(x) \land F(x) \]
  \[ \forall x . H(x) \rightarrow G(x) \]
  \[ \therefore \exists x . H(x) \land F(x) \]

• No G are F. Everything is F. So: Nothing is G

• All G are F. Something is G. So: Some G is F
**PROBLEM 2 Symbolizing with a Key**

Using this symbolization key:
- **domain**: all animals
  - \( A(x) \): \( x \) is an alligator
  - \( M(x) \): \( x \) is a monkey
  - \( Z(x) \): \( x \) lives at the zoo
  - \( L(x, y) \): \( x \) loves \( y \)
- \( a \): Artist
- \( b \): Bouncer
- \( c \): Champion

Symbolize each of the following sentences; the first one is done for you.

**If both Bouncer and Champion are alligators, then Artist loves them both.**

\[
(A(b) \land A(c)) \rightarrow (L(a, b) \land L(a, c))
\]

**There are no monkeys at the zoo.**

Bouncer loves every animal that loves Bouncer.

Artist and Champion don’t love any of the same animals.