1. Which of the following propositions are true? The universe is given in parentheses.

(a) \( (\forall x) (x \text{ has four legs}) \) \hspace{0.5cm} \text{(animals)}

(b) \( (\exists x) (x \text{ has four legs}) \) \hspace{0.5cm} \text{(animals)}

(c) \( (\forall x) (x^2 + 4x + 5 > 0) \) \hspace{0.5cm} \text{(all real numbers)}

(d) \( (\forall S) ([S \text{ is bounded}] \implies [S \text{ is finite}]) \) \hspace{0.5cm} \text{(all subsets of \( \mathbb{R} \))}

(e) \( (\exists S) ([S \text{ is bounded}] \land [S \text{ is infinite}]) \) \hspace{0.5cm} \text{(all subsets of \( \mathbb{R} \))}

(f) \( (\forall S) ([S \text{ is bounded}] \implies [S \text{ is finite}]) \) \hspace{0.5cm} \text{(all subsets of \( \mathbb{N} \))}

(2) Translate the sentence into a symbolic sentence with quantifiers. The universe is given in parentheses.

(a) If \( k \) is prime, then either \( k = 2 \) or \( k \) is odd. \hspace{0.5cm} \text{(positive integers)}

(b) All elephants have trunks. \hspace{0.5cm} \text{(animals)}

(c) Not all horses have spots. \hspace{0.5cm} \text{(animals)}