Foundations of Logic

Logic · Answer Key · 15 Questions

1. Who is widely considered the father of formal logic for his development of the syllogism?

A) Socrates
B) Plato
C) Aristotle
D) Pythagoras

2. In propositional logic, what is the term for a statement that is always true under every possible interpretation?

A) Contradiction
B) Tautology
C) Variable
D) Conjunction

3. Which logical operator is represented by the symbol '?' and returns true if at least one input is true?

A) Disjunction
B) Negation
C) Implication
D) Biconditional

4. What is the name of the logical fallacy that involves attacking the person making an argument rather than the argument itself?

A) Straw man
B) Ad hominem
C) False dilemma
D) Slippery slope

5. Which English mathematician developed the algebraic system of logic now known as Boolean algebra?

A) Isaac Newton
B) Alan Turing
C) George Boole
D) Ada Lovelace

Quixly | This material was auto-generated. Quixly is not liable for errors or omissions. Visit quixlylearn.com to report corrections.

6. In a syllogism, what is the name of the statement that follows from the major and minor premises?

A) Axiom
B) Hypothesis
C) Conclusion
D) Variable

7. What does the logical 'NOT' operator, usually represented by '¬', do to the truth value of a proposition?

A) Doubles it
B) Inverts it
C) Squares it
D) Adds it

8. Which 20th-century logician is famous for proving the 'Incompleteness Theorems'?

A) Kurt Gödel
B) Bertrand Russell
C) Gottlob Frege
D) Ludwig Wittgenstein

9. A 'conditional' statement in logic is often structured in which of the following formats?

A) Neither A nor B
B) If P, then Q
C) P and Q
D) Either P or Q

10. What is the technical term for a logical argument that is valid and has true premises?

A) Consistent
B) Sound
C) Complete
D) Decidable

11. What is the term for the logical principle stating that a statement cannot be both true and false at the same time and in the same sense?

A) Law of Identity
B) Law of Excluded Middle
C) Law of Non-Contradiction
D) Principle of Sufficient Reason

Quixly | This material was auto-generated. Quixly is not liable for errors or omissions. Visit quixlylearn.com to report corrections.

12. Which gate in digital logic outputs a high signal only if both of its inputs are high?

A) OR gate
B) NOT gate
C) AND gate
D) XOR gate

13. What is the name of the logical structure where a proposition must be either true or false, with no third option?

A) Law of Excluded Middle
B) Double Negation
C) Universal Generalization
D) Existential Instantiation

14. In predicate logic, what symbol is used to denote the existential quantifier?

A) ?
B) ?
C) ->
D) <->

15. Which logical connective requires both propositions to be true for the entire statement to be true?

A) Disjunction
B) Conjunction
C) Negation
D) Implication