

# Self-Assessment Quiz: Mathematical Logic & Reasoning (Lecture 3)

*Department of Mathematical Sciences*

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## Instructions

Choose the correct answer for each question. Mark yourself at the end.

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## Questions

**Q1.** Which of the following is a *simple statement*?

- A) Close the door.
- B)  $x > 2$ .
- C)  $2 + 2 = 4$ .
- D) He is very rich.

**Q2.** What is the truth value of the proposition " $5 < 3$ "?

- A) True
- B) False

**Q3.** A sentence that is either true or false, but not both, is called:

- A) Argument
- B) Proposition
- C) Variable
- D) Predicate

**Q4.** Which of the following is *not* a proposition?

- A)  $4 + 2 = 6$
- B)  $4 + 2 = 7$
- C)  $x + 2 > 5$
- D) Grass is green

**Q5.** If  $p$  = "It is hot" and  $q$  = "It is sunny", what does " $p \wedge q$ " mean?

- A) It is hot or sunny.
- B) It is hot and sunny.
- C) It is not hot but sunny.

D) It is neither hot nor sunny.

**Q6.** Negation ( $\sim p$ ) means:

- A) The same as  $p$
- B) Opposite truth value of  $p$
- C) Both true and false
- D) Always true

**Q7.** Which of the following compound statements is correctly translated? “Zia is not wealthy but he is healthy and wise.”

- A)  $\sim w \wedge (h \wedge s)$
- B)  $w \wedge \sim h \wedge s$
- C)  $(h \wedge s) \vee \sim w$
- D)  $\sim w \vee (h \wedge s)$

**Q8.** What is the disjunction of  $p$  and  $q$  ( $p \vee q$ )?

- A) True only when both are true
- B) False when both are false
- C) Always false
- D) True only when one is false

**Q9.** In a truth table,  $p \wedge q$  is false when:

- A) Both  $p$  and  $q$  are true
- B) At least one of  $p$  or  $q$  is false
- C) Both are false only
- D)  $p$  is true and  $q$  is false

**Q10.** What is the main goal of constructing a truth table?

- A) To simplify algebraic expressions
- B) To determine the truth value of compound statements
- C) To translate English into symbols
- D) To measure probability

## Answer Key

Question	Answer
1	C
2	B
3	B
4	C
5	B
6	B
7	A
8	B
9	B
10	B

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*End of Quiz*