

3.1 Statements, Connectives, and Quantifiers

M.Goodroe - Quantitative Skills and Reasoning

Key Terms:

Statements
Simple statement
Compound statement
Connectives
Negation
Conjunction (*and*)
Disjunction (*or*)
Conditional (*If, ... then.*)
Biconditional (*If and only if.*)
Universal Quantifier
Existential Quantifier

Name: _____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Decide whether or not the following is a statement.

- 1) Not all flowers are roses.
- 2) One inch is 2.54 centimeters.

Identify the statement as simple or compound.

- 3) The car is in the garage and the bicycle is in the driveway.
- 4) The team leader has decided to take a vacation.
- 5) The apartment is rented or it is available.
- 6) The clown is not amusing.

Write the statement in symbolic form.

- 7) The Democrats will control the Senate and environmental programs will not be cut.
- 8) If you exercise, then you will feel great or you will sleep better.
- 9) You, as president, may declare war, but Congress may override your declaration if and only if their constituents are against war and there is a majority vote.

Use the following definitions to translate the statement into words.

p: The monitor is included.

q: The color printer is optional.

r: The zip drive is extra.

10) $p \wedge (\sim q)$

11) $\sim(p \wedge q) \rightarrow (r \vee \sim q)$

Negate each quantified statement and rewrite it in English in an alternative way.

12) All dinosaurs were carnivores.

13) Some citizens obey traffic laws.