

Chapter 3 Review Questions



Studying for a chapter examination is a personal process, one which nobody else can do for you. Simply take the time to review what you have done. Here are the new terms in Chapter 3.

And [3.1]	Disjunction [3.1]	Negation [3.1]
AND-gate [3.6]	Either ... or [3.1]	Negation of a conditional [3.3]
Antecedent [3.2]	Exclusive or [3.1]	Neither ... nor [3.3]
Argument [3.1]	Fallacy [3.4]	No p is q [3.3]
Assuming the antecedent [3.4]	Fallacy of the converse [3.4]	Not [3.1]
Assuming the consequent (fallacy) [3.4]	Fallacy of the inverse [3.4]	NOT-gate [3.6]
Because [3.3]	False chain pattern [3.4]	Operator [3.1]
Biconditional [3.3]	Fundamental operators [3.2]	Or [3.1]
Circuit [3.6]	Fuzzy logic [3.1]	OR-gate [3.6]
Compound statement [3.1]	Gates [3.6]	Parallel circuit [3.6]
Conclusion [3.1]	Hypothesis [3.1]	Premise [3.1]
Conditional [3.2]	Implication [3.3]	Series circuit [3.6]
Conjunction [3.1]	Inclusive or [3.1]	Simple statement [3.1]
Connective [3.1]	Indirect reasoning [3.4]	Statement [3.1]
Consequent [3.2]	Invalid argument [3.1, 3.4]	Syllogism [3.4]
Contrapositive [3.2]	Inverse [3.2]	Symbolic logic [3.1]
Converse [3.2]	Law of contraposition [3.2]	Tautology [3.3]
Counterexample [3.4]	Law of detachment [3.4]	Theorem [3.4]
Deductive reasoning [3.1]	Law of double negation [3.2]	Transitive reasoning [3.4]
De Morgan's laws [3.3]	Law of the excluded middle [3.1]	Truth set [3.3]
Denying the antecedent (fallacy) [3.4]	Logic [3.1]	Truth table [3.2]
Denying the consequent [3.4]	Logical equivalence [3.3]	Truth value [3.1]
Direct reasoning [3.4]	Logical fallacy [3.4]	Unless [3.3]
	Modus ponens [3.4]	Valid argument [3.1]
	Modus tollens [3.4]	

If you can describe the term, read on to the next one; if you cannot, then look it up in the text (the section number is shown in brackets). Next, review the types of problems in Chapter 3.

TYPES OF PROBLEMS

Determine whether a sentence is a statement. [3.1]

Write the negation of *all*, *some*, and *not*. [3.1]

Find truth value of simple and compound statements. [3.1]

Translate statements into symbolic form. [3.1-3.3]

Translate symbolic form into verbal statements. [3.2, 3.3]

Construct a truth table for a given symbolic form. [3.2]

Apply the definition of the conditional. [3.2]

Write the converse, inverse, and contrapositive for a given statement. [3.2]

Determine whether a given symbolic statement is true or false. [3.2]

Decide whether a given statement is a tautology. [3.3]

Write an implication as a disjunction. [3.3]

Write the negation of a compound statement. [3.3]

Given certain real-life premises reach conclusions. [3.3, 3.4]

Be able to recognize, state, and prove valid forms of reasoning, namely direct reasoning, indirect reasoning, and transitive reasoning. [3.4]

Prove logical statements. [3.3, 3.4]

Determine whether a given argument is valid or invalid. [3.4]

Classify valid forms of reasoning and recognize common fallacies. [3.4]

Find a valid conclusion for a given argument. [3.4]

Classify items as an undefined term, defined term, postulate, or theorem. [3.5]

Prove simple theorems using given definitions and postulates. [3.5]

Solve logical puzzles. [3.5]

Design a circuit to simulate truth values of a given logical statement. [3.6]

Use gates to design a circuit. [3.6]

Once again, see if you can verbalize (to yourself) how to do each of the listed types of problems.

Work all of Chapter 3 Review Questions (whether they are assigned or not). Work through all of the problems before looking at the answers, and *then* correct each of the problems. The entire solution is shown in the answer section at the back of the text. If you worked the problem correctly, move on to the next problem, but if you did not work it correctly (or you did not know what to do), look back in the chapter to study the procedure, or ask your instructor.

Finally, go back over the homework problems you have been assigned. If you worked a problem correctly, move on the next problem, but if you missed it on your homework, then you should look back in the book or talk to your instructor about how to work the problem.

If you follow these steps, you should be successful with your review of this chapter.