CLASS XI – MATHEMATICS – CHAPTER 14
MATHEMATICAL REASONING

Name: Date:

Q01. Give three examples of sentences which are not statements. Give reasons for the answers.

Q02. Write the negation of the following statements

(a) Chennai is the capital of Tamil Nadu.   (b) Every natural number is an integer.

Q03. Find the component statements of the following compound statements and check whether they are true or false.

(a) The number 3 is prime or it is odd.

Q04. Check whether the following pair of statements are negations of each other. Give reasons for your answer.

(a) x + y = y + x is true for every real numbers x and y .

(b) There exists real numbers x and y for which x + y = y + x .

Q05. Write the contra-positive and converse of the following statements.

(a) If x is a prime number, then x is odd.

(b) if the two lines are parallel, then they do not intersect in the same plane.

Q06. Show that the statement

P : "If x is a real number such that $x_3 + 4x = 0$, then x is 0" is true by

(a) direct method   (b) method of contradiction   (c) method of contra-positive

Q07. Given below are two statements

P : 25 is a multiple of 5.   q: 25 is a multiple of 8

Write the compound statements connecting these two statements with "and" and "OR". In both cases check the validity of the compound statement.

Q08. Write the following statement in five different ways, conveying the same meaning.

P : If a triangle is equiangular, then it is an obtuse angled triangle.