

Important Questions 2010
Class-XII- Maths
Mathematical Reasoning

Q.1. Write the negation of the following statements:

- (i) The number 2 is greater than 7.
- (ii) All triangles are not equilateral triangle.
- (iii) Australia is a continent.
- (iv) There does not exist a quadrilateral which has all its sides equal.
- (v) Every natural number is greater than 0.
- (vi) The sum of 3 and 4 is 9.

Q.2. Find the component statements of the following compound statements and check whether they are true or false.

- (i) Number 3 is prime or it is odd.
- (ii) All integers are positive or negative.
- (iii) 100 is divisible by 3, 11 and 5.

Q.3. State whether the “Or” used in the following statements is “exclusive “or” inclusive. Give reasons for your answer.

- (i) Sun rises or Moon sets.
- (ii) To apply for a driving licence, you should have a ration card or a passport.
- (iii) All integers are positive or negative.

Q.4. Write the contrapositive of the following statements :

- (i) If a triangle is equilateral, it is isosceles.
- (ii) If x is a prime number, then x is odd.

Q.5. Write the converse of the following statements.

- (i) If a number n is even, then n^2 is even.
- (ii) If you do all the exercises in the book, you get an A grade in the class.
- (iii) If two integers a and b are such that $a > b$, then $a - b$ is always a positive integer.

Q. 6. Check whether the following statement is true or not.

If 

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Q.7. Using the words “necessary and sufficient” rewrite the statement “the integer n is odd if and only if n^2 is odd”. Also check whether the statement is true.

Q.8. Rewrite the following statements in the form of “ p if and only if q ”.

(i) p : If you watch television, then your mind is free and if your mind is free, then you watch television.

(ii) q : For you to get an A grade, it is necessary and sufficient that you do all the homework regularly