

Class XI

WORKSHEET (STANDARD)

Mathematical Reasoning

Objective type Questions (1 mark)

Choose the correct answer out of the four given options in each of the following questions.

- 1. The negation of the statement "Rajesh or Rajani lived in bangalore" is**
(A) Rajesh did not live in Bangalore or Rajni lives in Bangalore.
(B) Rajesh lives in Bangalore or Rajni did not live in Bangalore.
(C) Rajesh did not live in Bangalore and Rajni lives in Bangalore.
(D) Rajesh did not live in Bangalore or Rajni did not live in Bangalore.
- 2. The contrapositive of the statement "If p, then q", is**
(A) If q, then p (B) If p, then $\sim q$
(C) If $\sim q$, then $\sim p$. (D) If $\sim p$, then $\sim q$.
- 3. The contrapositive of the statement "If 7 is greater than 5, then 8 is greater than 6" is**
(A) If 8 is greater than 6, then 7 is greater than 5
(B) If 8 is not greater than 6, then 7 is greater than 5
(C) If 8 is not greater than 6, then 7 is not greater than 5.
(D) If 8 is greater than 6, then 7 is greater than 5.
- 4. The converse of the statement "If $x > y$, then $x + a > y + a$ " is**
(A) If $x < y$, then $x + a < y + a$.
(B) If $x + a > y + a$, then $x > y$.
(C) If $x < y$, then $x + a > y + a$.
(D) If $x > y$, then $x + a < y + a$.
- 5. The converse of the statement "If sun is not shining, then sky is filled with clouds" is**
(A) If sky is filled with clouds, then the sun is not shining.
(B) If sun is shining, then sky is filled with clouds
(C) If sky is clear, then sun is shining
(D) If sun is not shining, then sky is not filled with clouds.
- 6. Which of the following is the conditional $p \rightarrow q$?**
(A) q is sufficient for p. (B) p is necessary for q.
(C) p only if q. (D) if q, then p.
- 7. Which of the following is not a negation of "A natural number is greater than zero"**
(A) A natural number is not greater than zero.
(B) It is false that a natural number is greater than zero.
(C) It is false that a natural number is not greater than zero.
(D) None of the above.

8. Which of the following statement is a conjunction ?

- (A) Ram and Shyam are friends.
- (B) Both Ram and Shyam are tall.
- (C) Both Ram and Shyam are enemies.
- (D) None of the above.

9. Which of the following is not a statement?

- (A) $2+2=4$.
- (B) 2 is the only even prime number.
- (C) Come here.
- (D) Smoking is injurious to health.

Very Short Answer Type Questions (1 mark)

State whether 'or' in the following statement is inclusive or exclusive

- 10. Sun rises or moon sets
- 11. Two lines intersect at a point or their parallel or a five sides polygon
- 12. All integers are positive or negative
- 13. $\sqrt{2}$ is a rational number or an irrational number
- 14. The school is closed, If there is a Holiday or Sunday

Write the converse and contrapositive of the following statement.

- 15. If a number n is even, then n^2 is even
- 16. If you do all the exercises in the book, you get an A grade in the class
- 17. Something is cold implies that It has low temperature
- 18. X is an even number implies that x is divisible by 4
- 19. If two lines are parallel, they don't intersect in the same plane

Write each of the following statement in the form if then.

- 20. A quadrilateral is a parallelogram if diagonal bisect each other
- 21. A number is multiple of 9, which is a multiple of 3
- 22. You get a job implies that your credentials are good.
- 23. You are born in the some country and citizen of that country
- 24. The Bananas trees will bloom if it is stage one for a month.

Short Answer Type Questions (2 marks)

For each of the following compound statements, first identify the connecting word and then break into component statements.

25. The sand heats up quickly in the sun and does not cool down fast at night.

26. $x=2$ and $x=3$ are the roots of the equation $3x^2 - x - 10 = 0$.