MATHS

BOOKS - MAXIMUM PUBLICATION

MATHEMATICAL REASONING

Example

1. Whether the sentence is statement:

There are 35 days in a month.

Watch Video Solution

2. Whether the sentence is statement:

Mathematics is difficult.

Watch Video Solution

3. Whether the sentence is statement:

The sum of 5 and 7 is greater than 10.

Watch Video Solution

4. Whether the sentence is statement:

The square of the number is an even number.

Watch Video Solution

5. Whether the sentence is statement:

The sides of a quadrilateral have equal length.

Watch Video Solution

6. Whether the sentence is statement:

Answer this question.

 Watch Video Solution

7. Whether the sentence is statement:

The product of -1 and 8 is -8.

 Watch Video Solution

8. Whether the sentence is statement:

The sum of all interior angles of a triangle is 180 degree.

Watch Video Solution

9. Whether the sentence is statement:

Today is a windy day.

Watch Video Solution

10. Whether the sentence is statement:

All real numbers are complex numbers.

Watch Video Solution

11. Write the negation of the following statement:

Chennai is the capital of Tamil Nadu.

Watch Video Solution

12. Write the negation of the following statement:

$\sqrt{2}$ is not a complex number.

Watch Video Solution

13. Write the negation of the following statement:

All triangles are not equilateral triangle.

Watch Video Solution

14. write the negation of the following statement:

The number 2 is greater than 7.

Watch Video Solution

15. Write the negation of the following statement:

every natural number is an integer.

Watch Video Solution

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

Number 3 is prime or it is odd.

Watch Video Solution

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

All integers are positive or negative.

Watch Video Solution

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

100 is divisible by 3,11 and 5.

Watch Video Solution

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

The sun shines or it rains.

Watch Video Solution

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

India is a democracy and monarchy.

Watch Video Solution

21. For the following compound statement first identify the connecting words and then

break it into component statement:

All rational numbers are real and all real numbers are not complex.

Watch Video Solution

22. For the following compound statement first identify the connecting words and then break it into component statement:

Square of an integer is positive or negative.

Watch Video Solution

23. For the following compound statement first identify the connecting words and then break it into component statement:

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

Watch Video Solution

24. For the following compound statement first identify the connecting words and then break it into component statement:

$z = 2$ and x=3$are the \sqrt[s]{} of the equation$3x^2-x-10=0`

Watch Video Solution

25. Write the contrapositive and converse of the following statement:

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

Watch Video Solution

26. Write the contrapositive and converse of the following statement:

If the two lines are parallel, then they do not intersect in the same plane.

Watch Video Solution

27. Write the contrapositive and converse of the following statement:

Something is cold implies that it has low temperature.

Watch Video Solution

28. Write the contrapositive and converse of the following statement:

you cannot comprehend geometry if you do not know how to reason deductively.

Watch Video Solution

29. Write the contrapositive and converse of the following statement:

x is an even number implies that x is divisible by 4.

Watch Video Solution

30. Show that the statement : "For any real numbers a and b, $a^2 = b^2$ implies that $a = b$" is not true by giving a counter example.

Watch Video Solution

31. State whether the or used in the following statements is "exclusive" or "inclusive". give reasons for your answer.

A rectangle is a quadrilateral or a pentagon.

Watch Video Solution

32. State whether the or used in the following statements is "exclusive" or "inclusive". give reasons for your answer.

A square is a polygon or a parallelogram.

Watch Video Solution

33. Show that the statement p:"If x is a real number such that $x^3 + 4x = 0$ then x is 0" is true by

Direct method.

Watch Video Solution

34. Show that the statement p:"If x is a real number such that $x^3 + 4x = 0$ then x is 0" is

true by

Method of contradiction.

Watch Video Solution

35. Show that the statement p:"If x is a real number such that $x^3 + 4x = 0$ then x is 0" is true by

method of contrapositive.

Watch Video Solution

36. Write the converse of the statement.

p: If a divides b then b is a multiple of a.

Watch Video Solution

37. Consider the compound statement.

p: 2+2 is equal to 4 or 6

Write the component statements.

Watch Video Solution

38. Consider the compound statement.

p: 2+2 is equal to 4 or 6

Is the compound statement true? Why?

Watch Video Solution

39. Verify by method of contradiction p: $\sqrt{2}$ is irrational.

Watch Video Solution

40. Write the negation of the following statement:

every natural number is an integer.

Watch Video Solution

41. Write the contrapositive and converse of the following statement:

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

Watch Video Solution

42. Write the component statement of the following statement: "All rational numbers are real and real numbers are complex.

Watch Video Solution

43. Write the contrapositive and converse of the following statement: 'If a number is divisible by 9, then it is divisible by 3.'

Watch Video Solution

44. Write the negation of the statement:'the sum of 3 and 4 is 9.'

Watch Video Solution

45. Write the component statements of 'Chandigarh is the capital of Haryana and Uttar Pradesh.'

Watch Video Solution

46. Write the converse of the statement:'If a number n is even, then n^2 is even.'

Watch Video Solution

47. Write the negation of the statement. "both the diagonals of a rectangle have the same length."

Watch Video Solution

48. Prove the statement,"Product of two odd integers is odd," by proving its contrapositive.

Watch Video Solution

49. Consider the compound statement"$\sqrt{5}$ is a rational number or irrational number".

Write the component statements of above and check whether these component statements are true or false.

Watch Video Solution

50. Consider the compound statement"$\sqrt{5}$ is a rational number or irrational number".

Check whether the compound statement is true or false.

Watch Video Solution

51. Write the converse of the statement:'If a number n is even, then n^2 is even.'

Watch Video Solution

52. Verify by method of contradiction p: $\sqrt{2}$ is irrational.

Watch Video Solution

53. Which of the following sentences are statements? Give reason for your answer.

the cube of a natural number is an odd number.

Watch Video Solution

54. Which of the following sentences are statements? Give reason for your answer.

the product of (-4) and (-5) is 20.

Watch Video Solution

55. Write the negation of the following statements and check whether the resulting statements are true.

$\sqrt{2}$ is rational.

Watch Video Solution

56. Write the negation of the following statements and check whether the resulting statements are true.

every natural number is greater than zero.

Watch Video Solution

57. Consider the statement,"If x is an integer and x^2 is even, then x is also even."

Write the converse of the statement.

Watch Video Solution

58. Consider the statement,"If x is an integer and x^2 is even, then x is also even."

prove the statement by the contrapositive method.

Watch Video Solution

59. Write the negation of the following statement:

All triangles are not equilateral triangle.

Watch Video Solution

60. Verify by the method of contradiction.

p: $\sqrt{7}$ is irrational.

Watch Video Solution

61. Write the contrapositive of the statement."If x is a prime number,then x is odd."

Watch Video Solution

62. Verify by the method of contradiction p: $\sqrt{5}$ is irrational.

Watch Video Solution

63. Write the negation of the following statement : "$\sqrt{5}$ is not a complex number."

Watch Video Solution

64. Verify by method of contradiction p: $\sqrt{2}$ is irrational.

Watch Video Solution

65. Write the negation of the statement: "$\sqrt{7}$ is rational.

Watch Video Solution

66. Prove that "$\sqrt{7}$ is irrational." by the method of contradiction.

Watch Video Solution

67. Which of the following is the contrapositive of the statement

$p \Rightarrow q$?

A. $q \Rightarrow p$

B. $\sim \pi mplies \sim q$

C. $\sim q \Rightarrow \sim p$

D. $\pi mplies \sim q$

Answer: a

Watch Video Solution

68. Consider the statement,"If x is an integer and x^2 is even, then x is also even."

prove the statement by the contrapositive method.

Watch Video Solution

69. write the negation of the statement:

"Every natural number is greater than Zero."

Watch Video Solution

70. Verify by the method of contradiction: "

p: $\sqrt{13}$ is irrational."

Watch Video Solution

71. Write the negation of the statement "$\sqrt{2}$ is not a complex number."

Watch Video Solution

72. Prove by the method of contradiction, "P: $\sqrt{11}$ is irrational."

Watch Video Solution

73. Write the contrapositive of the given statement.

"If a number is divisible by 9, then it is divisible by 3."

Watch Video Solution

74. Verify by the method of contradiction p: $\sqrt{5}$ is irrational.

Watch Video Solution