MATHS

BOOKS - MAXIMUM PUBLICATION

QUESTION PAPER MARCH 19

Example

1. Let $A = \{x : x$ is a prime number less than 11$\}$ and $B = \{x : x$ is an integer such that

$2 \leq x \leq 8\}$.

Write $C = A \bigcap B$.

Watch Video Solution

2. Find the number of subsets of C which has 3 elements.

Watch Video Solution

3. Find $(a+b)^4 - (a-b)^4$.

Watch Video Solution

4. evaluate

$$\left(\sqrt{3}+\sqrt{2}\right)^4-\left(\sqrt{3}-\sqrt{2}\right)^4$$

Watch Video Solution

5. Find the square root of the complex $3+4i$.

Watch Video Solution

6. The sum of first three terms of a Geometric Progression is $\frac{13}{12}$ and their product is -1. Find the common ratio and the terms.

Watch Video Solution

7. Find the solution of the equation

$$\sin x + \sin 3x + \sin 5x = 0$$

Watch Video Solution

8. Find the general term in the expansion of $\left(x^2+\frac{1}{x}\right)^5$.

Watch Video Solution

9. If the expansion of $\left(x^2+\frac{1}{x}\right)^n$ has a term independent of x, then which of the following can be the value of n?

A. 18

B. 16

C. 22

D. 13

Answer: A

View Text Solution

10. In a school , a survey among 400 students, 100 were listed as taking apple juice, 150 as taking orange juice and 75 were listed as taking both apple juice as well as orange

juice.How many students take apple juice or orange juice?

Watch Video Solution

11. In a school , a survey among 400 students, 100 were listed as taking apple juice, 150 as taking orange juice and 75 were listed as taking both apple juice as well as orange juice. How many take apple juice alone but not orange juice?

Watch Video Solution

12. In a school , a survey among 400 students, 100 were listed as taking apple juice, 150 as taking orange juice and 75 were listed as taking both apple juice as well as orange juice.How many students were taking neither apple juice nor orange juice?

Watch Video Solution

13. Consider the set $A = \{-1, 1\}$ Consider all elements in $A \times A$.

Watch Video Solution

14. Consider the set $A = \{-1, 1\}$ How many relations are there from A to A?

Watch Video Solution

15. Using principle of mathematical induction prove that $n(n+1)(n+5)$ is a multiple of 3 for all $n \in N$.

Watch Video Solution

16. If z is a complex number with $|z| = 2$ and $arg(z) = \frac{4\pi}{3}$, then express z in $a + ib$ form.

Watch Video Solution

17. If z is a complex number with $|z| = 2$ and $arg(z) = \frac{4\pi}{3}$. then Find $\bar{z}$

Watch Video Solution

18. If z is a complex number with $|z| = 2$ and $arg(z) = \frac{4\pi}{3}$. then

Verify that $(\bar{z})^2 = 2z$

Watch Video Solution

19. Seven cards are drawn from a pack of well shuffled 52 playing cards.

How many ways this can be done?

Watch Video Solution

20. Seven cards are drawn from a pack of well shuffled 52 playing cards.

What is the probability that the selection contain all kings?

 Watch Video Solution

21. Seven cards are drawn from a pack of well shuffled 52 playing cards.

What is the probability that selection does not contain a king card?

 Watch Video Solution

22. Write the contrapositive of the given statement.

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

Watch Video Solution

23. Verify by the method of contradiction.

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

Watch Video Solution

24. Consider the word ASSASSINATION

How many different ways can the letters of the word are arranged.

Watch Video Solution

25. Consider the word ASSASSINATION

How many of these words have all vowels together?

Watch Video Solution

26. Let A (0,7,10), B (-1,6,6,) and C (-4,9,6) are the vertices of a triangle.Show that it is a right angle triangle.

 Watch Video Solution

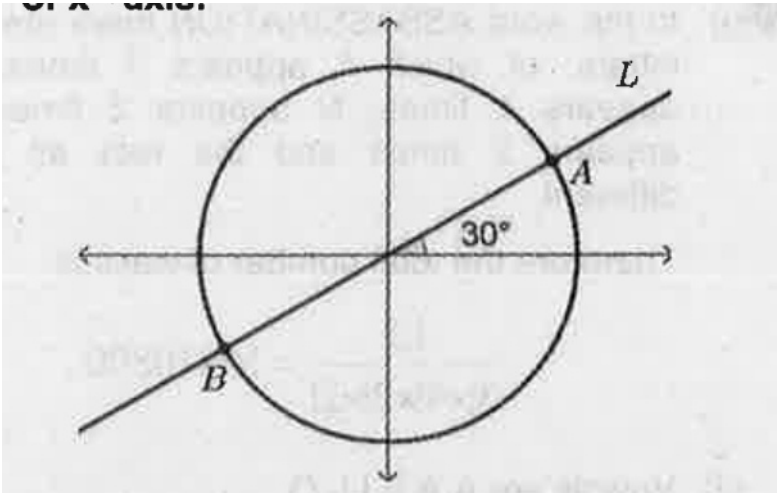
27. Let A (0,7,10), B (-1,6,6,) and C (-4,9,6) are the vertices of a triangle.

Find the coordinate of the centre of the circle passing through the point A,B,C.

 Watch Video Solution

28. The figure shows a unit circle and a line L which makes 30° with the positive direction of x-axis.

Write the coordinate of the points A and B.



Watch Video Solution

29. Consider two lines $L_1 : 2x + y = 4$ and $L_2 : (2x - y = 2)$.Find the angle between $L1$ and $L2$.

Watch Video Solution

30. Consider two lines $L_1 : 2x + y = 4$ and $L_2 : (2x - y = 2)$

Find the equation of the line passing through the intersection of $L1$ and $L2$ which makes an angle 45^o with the positive direction of $x - a\xi s$.

Watch Video Solution

31. Consider two lines $L_1 : 2x + y = 4$ and $L_2 : (2x - y = 2)$

Find the equation of the line passing through the intersection of L_1 and L_2 which makes an angle 45^o with the positive direction of $x - a\xi s.$

Find the x and y intercepts of the third line obtained.

Watch Video Solution

32. If an ellipse passing through $(3, 1)$ having $foci(\pm 4, 0)$, then find the length of the major axis.

Watch Video Solution

33. If an ellipse passing through $(3, 1)$ having $foci(\pm 4, 0)$, then find the standard equation of the ellipse.

Watch Video Solution

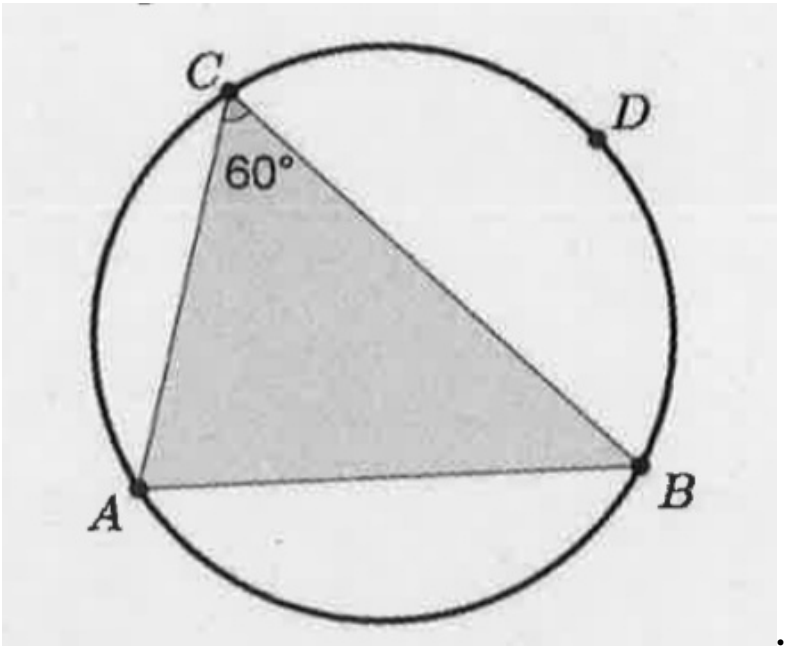
34. If an ellipse passing through (3,1) having foci'(+-4,0)', then find the eccentricity and length of the latus rectum.

Watch Video Solution

35. Find $\sin 75^\circ$

Watch Video Solution

36. The figure shows $\triangle ABC$ with side $AC = 4\sqrt{2}$ units inscribed in a circle of radius 4 units. The length of the are BDC is $\frac{10\pi}{3}$ units. Write $\angle A$ in degree measure.



Watch Video Solution

37. Solve $\frac{3(x-2)}{5} \leq \frac{5(2-x)}{3}$.

Watch Video Solution

38. Solve the inequalities

$2x + 3y \leq 12, x \geq 1, y \geq 2$ graphically.

Watch Video Solution

39. Find the derivative of $y = x^2$ using the first principle.

Watch Video Solution

40. Find $\frac{dy}{dx}$ if $y = \frac{x}{1 + \tan x}$

Watch Video Solution

41. Consider the sequence $3, 6, 9, 12, \ldots, 99$

How many terms are there in the given sequence?

Watch Video Solution

42. Consider the sequence $3, 6, 9, 12, \ldots, 99$.

Find the mean of the sequence.

Watch Video Solution

43. Consider the sequence $3, 6, 9, 12, \ldots, 99$.

Find the sum of square of each terms of the given sequence.

Watch Video Solution

44. Consider the sequence $3, 6, 9, 12, \ldots, 99$ .Find the variance of the sequence.

Watch Video Solution