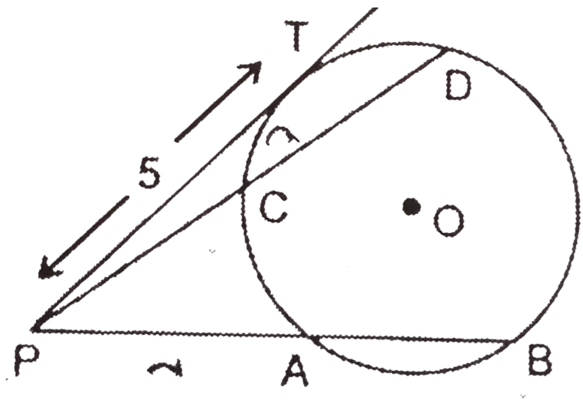
MATHS

BOOKS - RESONANCE DPP ENGLISH

BOARD PAPER SOLUTIONS

Others

1. In the given figure (circle) , $PT = 5$, $PD = 7$ and $PA = 2$, the value of $PB - PC = ?$



2. The positive integers $p, q, \& r$ are all primes if $p^2 - q^2 = r,$ then find all possible values of r

Watch Video Solution

3. If $f(x) = x^4 - 2x^3 + 3x^2 - ax + b$ is a polynomial such that when it is divided by $x - 1$ and $x + 1,$ the remainders are respectively 5 and $19.$ Determine the remainder when $f(x)$ is divided by $(x - 2)\cdot$

Watch Video Solution

4. If x, y, z are all different real numbers, then $\frac{1}{(x-y)^2} + \frac{1}{(y-z)^2} + \frac{1}{(z-x)^2} = \left(\frac{1}{x-y} + \frac{1}{y-z} + \frac{1}{z-x}\right)^2$

Watch Video Solution

5. If $sec\theta + tan\theta = 5.$ where $\theta \in (0, \pi/2)$, then $\tan(\theta/2)$ is equal to

$a. \ -2/3\, b.\, 3/2\, c. \ -3/2\, d.$ none of these

Watch Video Solution

6. If $\sin\theta + \cos ec\theta = 2$, then the value of $\frac{\sin\theta}{16}\frac{\sin\theta}{8}\frac{\sin\theta}{4}\frac{\sin\theta}{2}\sin 2\theta$ is

1 b. $\frac{1}{\sqrt{2}}$ c. $-\frac{1}{\sqrt{2}}$ d. 0

Watch Video Solution

7. The number of integral values of k for which the equation

$7\cos x + 5\sin x = 2k + 1$ has a solution, is

Watch Video Solution

8. The number of solutions of the equation

$\cos 6x + \tan^2 x + \cos 6x \tan^2 x = 1$ in the interval $[0, 2\pi]$ is 4 (b) 5 (c) 6

(d) 7

Watch Video Solution

9. From a point P(1, 2), pair of tangents are drawn to hyperbola, one tangent ot each arm of hyperbola. Equations of asymptotes of hyperbola are $\sqrt{3}x - y + 5 = 0$ and $\sqrt{3}x + y - 1 = 0$. Find the eccentricity of hyperbola.

Watch Video Solution

10. If the roots of the equation , $x^2 + 2cx + ab = 0$ are real and unequal, then the roots of the equation, $x^2 - 2(a+b)x + \left(a^2 + b^2 + 2c^2\right) = 0$ are: a. real and unequal b. real and equal c. imaginary d. Rational

Watch Video Solution

11. If sum of the roots of the quadratic equation, $ax^2 + bx + c = 0 is 12$, then the sum of the roots of the equation, $a(x+1)^2 + b(x+1) + c = 0$ is: a. 9 b. 10 c. 12 d. 14

Watch Video Solution

12. The smallest of values of $x^2 - 3x + 3$ in the interval $\left[-3, \frac{3}{2}\right]$ is a. -20 b. -15 c. 5 d. 3/4

Watch Video Solution

13. If $\alpha and \beta$ are roots of the quadratic equation $ax^2 + bx + c = 0$ and $a + b + c > 0, a - b + c > 0 \& c < 0, then [\alpha] + [\beta]$ is equal to (where $[.]$ denotes the greatest integer function) (a)10 (b) -3 (c) -1 (d) 0

Watch Video Solution

14. Given that $ax^2 + bx + c = 0$ has no real roots and $a + b + c < 0$, then $c \neq 0$ b. $c < 0$ c. $c > 0$ d. $c = 0$

Watch Video Solution

15. If α and $\beta(\alpha < \beta)$ are the roots of the equation $x^2 + bx + c = 0$ where $c < 0 < b$, then

Watch Video Solution

16. Number of real solutions of the equation $x^2 + \left(\frac{x}{x-1}\right)^2 = 8$ are a. 3 b. 4 c. 6 d. 0

Watch Video Solution

17. Draw the graph of $y = 2x^3 - 15x^2 + 36x + 12$ $y = -x^4 + 2x^2 - 3$

Watch Video Solution

18. Solve: $\left|\frac{x^2-8x+12}{x^2-10x+21}\right| = \frac{-\left(x^2-8x+12\right)}{x^2-10x+21}$

Watch Video Solution

19. The number $N = \frac{1+2\log_3 2}{\left(1+\log_3 2\right)^2} + \left(\log_6 2\right)^2$ when simplified reduces to:

Watch Video Solution

20. The complete solution set of the inequation, $-2 < [x+2] \leq 5 where [.]$ denotes greatest integer function is a. $(-4, 4)$ b. $[-3, 4)$ c. $[-3, 3)$ d. None of these

Watch Video Solution

21. The sum of $\left[\frac{1}{2}\right]+\left[\frac{1}{2}+\frac{1}{2000}\right]+\left[\frac{1}{2}+\frac{2}{2000}\right]+\left[\frac{1}{2}+\frac{3}{2000}\right]++\left[\frac{1}{2}+\frac{1999}{2000}\right]$ where [.] denote the greatest integer function, is equal to: 1000 (b) 999

(c) 1001 (d) none of these

Watch Video Solution

22. Number of roots of equation $3^{|x|}-|2-|x||=1$ is a. 0 b. 2 c. 4 d. 7

Watch Video Solution

23. Number of solution satisfying, $\sqrt{5-(\log)_2x}=3-(\log)_2x$ are:

(a)1 (b)2 (c)3 (d) 4

Watch Video Solution

24. If $x = (\log)_k b = (\log)_b c = \frac{1}{2}(\log)_c d,$ then $(\log)_k d$ is equal to (a)$6x$ (b) $\frac{x^3}{2}$ (c) $2x^3$ (d) $2x^8$

Watch Video Solution

25. The number of solution of the equation, log $(-2x) = 2\log(x+1)$ is

a. zero b. 1 c. 2 d. None of these

Watch Video Solution

26. Number of integral solutions of the equation $(\log)_{x-3}\left((\log)_{2\mathrm{x}^2-2\mathrm{x}+3}\left(x^2+2x\right)\right) = 0$ is

a. 4 b. 2 c. 1 d. 0

Watch Video Solution

27. Find the equation of whose roots is greater by unity than the roots of the equation $x^3 - 5x^2 + 6x - 3 = 0$

Watch Video Solution

28. For $\theta \in \left(0, \frac{\pi}{2}\right)$, the maximum value of $\sin\left(\theta + \frac{\pi}{6}\right) + \cos\left(\theta + \frac{\pi}{6}\right)$ is attained at θ=

Watch Video Solution

29. The quadratic equation $x^2 - 9x + 3 = 0$ has roots $\alpha \text{ and } \beta. If x^2 - bx - c = 0$ has roots $\alpha^2 \text{ and } \beta^2,$ then (b, c) is

Watch Video Solution

30. If product of the roots of the equation $3x^2 - 4x + \left(\log a^2 - \log(-a) + 3\right) = 0$ is 1, then $'a'$ equal to

a. not possible b. -1 c. 1 d. none of these

Watch Video Solution

31. If every pair from among the equations $x^2 + px + qr = 0, \text{ and } x^2 + rx + pq = 0$ have a common root, then $\left(\frac{\text{sum of all distinct roots}}{\text{Product of all distinct roots}}\right)$ is

Watch Video Solution

32. The roots α and β of the quadratic equation $ax^2 + bx + c = 0$ are and of opposite sing. The roots of the equation $\alpha(x - \beta)^2 + \beta(x - \alpha)^2 = 0$ are

Watch Video Solution

33. A quadratic equation whose roots are $\cos ec^2\theta$ and $\sec^2\theta$ can be

(1) $x^2 - 2x + 2 = 0$

(2) $x^2 - 3x + 3 = 0$

(3) $x^2 - 3x + 4 = 0$

(4) $x^2 - 5x + 5 = 0$

Watch Video Solution

34. If the equation $\sin^4 x - (k+2)\sin^2 x = (k+3)$ has a solution then $'k'$ must lie in the interval: a.$(-4, -2)$ b. $[-3, 2)$ c. $(-4, -3)$ d. $[-3, -2]$

Watch Video Solution

35. Simplify : $\sqrt[3]{5^{\frac{1}{\log_7 5}} + \frac{1}{\sqrt{-\log_{10}(0.1)}}}$

Watch Video Solution

36. A polynomial P(x) of third degree vanish when $x = 1$ & $x = -2$. This polynomial have the values 4 & 28 when $x = -1$ and $x = 2$ respectively.

If the polynomial $P(x)$ is divided by $(x+3)$, the remainder is

a. -32 b. 100 c. 32 d. 0

Watch Video Solution

37. A polynomial P(x) of third degree vanish when $x = 1$ & $x = -2$. This polynomial have the values 4 & 28 when $x = -1$ and $x = 2$ respectively. One of the factor of $P(x)$ is

a. $x+1$ b. $x-2$ c. $3x+1$ d. None of these

Watch Video Solution

38. Let $\cos(\alpha+\beta) = \frac{4}{5}$ and let $\sin(\alpha+\beta) = \frac{5}{13}$ where $0 \leq \alpha, \beta \leq \frac{\pi}{4}$, then $tan 2\alpha =$ (1) $\frac{56}{33}$ (2) $\frac{19}{12}$ (3) $\frac{20}{7}$ (4) $\frac{25}{16}$

Watch Video Solution

39. Number of solutions of the equation $tanx + secx = 2\cos x$ lying in the lying in the interval $[0, 2\pi)$ is 0 b. 1 c. 2 d. 3

Watch Video Solution

40. $\cos\alpha$ is a root of the equation $25x^2 + 5x - 12 = 0, \ -1 < x < 0,$ then the value of $\sin 2\alpha$ is:

Watch Video Solution

41. In a triangle $ABC,$ right angled at $C, tanA + tanB$ is equal to a. $a + b$ b. $\frac{c^2}{ab}$ c. $\frac{a^2}{bc}$ d. $\frac{b^2}{ac}$

Watch Video Solution

42. Consider the equation |x^2-2x- 3|=m .m belongs to R .If the given equation has four solutions, then $m \in (0, \infty)$ b. $m \in (-1, 3)$ c.

$m \in (0, 4)$ d. None of these

Watch Video Solution

43. Consider the equation |x^2-2x- 3|=m .m belongs to R .If the given equation has four solutions, then $m \in (0, \infty)$ b. $m \in (-1, 3)$ c. $m \in (0, 4)$ d. None of these

Watch Video Solution

44. Consider the equation |x^2-2x- 3|=m .m belongs to R .If the given equation has four solutions, then $m \in (0, \infty)$ b. $m \in (-1, 3)$ c. $m \in (0, 4)$ d. None of these

Watch Video Solution

45. A class contains 4 boys and g girls. Every Sunday five students, including at least three boys go for a picnic to Appu Ghar, a different group being set every week. During, the picnic, the class teacher gives a doll to each girl in the group. If the total number of dolls distributed was 85, then value of g is 15 (b) 12 (c) 8 (d) 5

Watch Video Solution

46. Draw graph of the following expression. Also find extremum value if it exists. $y = |x-2| + |x-1| + |x+1| + |x+2|$

Watch Video Solution

47. Draw graph of $y = |3x-5|$

Watch Video Solution

48. The number of integral value(s) of x satisfying the equation $\left|x^4.3^{|x-2|}.5^{x-1}\right| = -x^4.3^{|x-2|}.5^{x-1}$ is

Watch Video Solution

49. The complete solution set of the inequation $\sqrt{x+18} < 2-x,$ is

$(-18, 2)$ (b) $-18, -5)$ $(-18, 5)$ (d) none of these

Watch Video Solution

50. If $\ln^2 x + 3\ln x - 4$ is non negative, then x must lie in the interval :

Watch Video Solution

51. If $\log 2, \log(2^x - 1) and \log 2 \log(2^x + 3)$ are in A.P., write the value of $x \cdot$

Watch Video Solution

52. The n^{th} term of the sequence $5 + 55 + 555 + \ldots$ is

a.$5 \times 10^{n-1}$ b. $5 \times 11^{n-1}$ c. $\frac{5}{9}(10^n - 1)$ d. none of these

Watch Video Solution

53. If $x^2 + ax + 10 = 0$ and $x^2 + bx - 10 = 0$ have common root, then $a^2 - b^2$ is equal to

Watch Video Solution

54. If the equation $x^2 = ax + b = 0$ has distinct real roots and $x^2 + a|x| + b = 0$ has only one real root, then which of the following is true? $b = 0, a > 0$ b. $b = 0, a < 0$ c. $b > 0, a < 0$ d. $b\langle 0, a\rangle 0$

Watch Video Solution

55. Sum of an infinitely manu terms of a G.P. is 3 times the sum of even terms. The common ratio of the G.P. is

Watch Video Solution

56. Draw graph of $y = |3x - 5|$ b. $y = |2x + 1|$

Watch Video Solution

57. The set of all values of $'a'$ for which the quadratic equation $3x^2 + 2(a^2 - 3a + 2) = 0$ possess roots of opposite sign, is

a.$(-\infty, 1)$ b. $(-\infty, 0)$ c. $(1, 2)$ d. $(3/2, 2)$

Watch Video Solution

58. $|(x^2 + 2x + 2) + (3x + 7)| < |x^2 + 2x + 2| + |3x + 7|$

Watch Video Solution

59. If a, b, c are first three terms of a G.P. If the harmonic mean of a and b is 20 and arithmetic mean of b and c is 5, then

Watch Video Solution

60. Solve the equation: $|x+1|-|x|+3|x-1|-2|x-2|=x+2$

Watch Video Solution

61. Solve the following $\left|x^2-1\right|+\left|x^2-4\right|\leq 3$

Watch Video Solution

62. Let $y=\dfrac{1}{2+\dfrac{1}{1+\dfrac{1}{2+\dfrac{1}{1+\frac{1}{\dots}}}}}$, then the value of y is a. $\dfrac{\sqrt{3}-1}{2}$ b. $\dfrac{2}{\sqrt{15}+3}$

c. $\dfrac{\sqrt{15}+3}{2}$ d. $\dfrac{1}{\sqrt{3}+1}$

Watch Video Solution

63. For the series,

$S=1+\dfrac{1}{(1+3)}(1+2)^2+\dfrac{1}{(1+3+5)}(1+2+3)^2+\dfrac{1}{(1+3+5+7)}($

+... 7th term is 16 7th term is 18 Sum of first 10 terms is $\frac{505}{4}$ Sum of first 10 terms is $\frac{45}{4}$

Watch Video Solution

64. If $x \varepsilon R$, the numbers $2^{1+x} + 2^{1-x}, \frac{b}{2}, 36^x + 36^{-x}$ from an $A. P$, then b must line in the interval

Watch Video Solution

65. Draw graph of the following expression. Also find extremum value if it exists. $y = |x-1| - |x-6|$

Watch Video Solution