



MATHS

BOOKS - UNITED BOOK HOUSE

MODEL QUESTION PAPERS-SET 5



1. If any two sets A and B, $(A \cup B)' \cup (A' \cup B) =$

A. a)A

B.b)B

C. c)A'

D. d)B'

Answer:

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2. If the roots of the equation (x - p) (x - q) - r =

O are α , β then the roots of the equation

$$(y-eta)(y-lpha)$$
 + r = 0 are

A. a)p,q

B.b)p,r

C. c)q,r

D. d)none of these.

Answer:



3. 10 tube lights are in a hall and there are10 switchs are in every tube light. How many way the hall islighting?

A. a)10!

B. b)1023

C. c) 10^2

 $\mathsf{D.d})2^{10}$

Answer:



4. If the sum of an infinite G.P. series is equal to the sum of 5 times of its odd terms, then the common ratio will be

A. a)5

B.b)4

C. c)2

D. d)3

Answer:



5. The equation of a straight line which intersects the axes in equal length and passes through (1, -2) is

A. a)x-1=y

- B. b)x+y=1
- C. c)x-y+1=0
- D. d)x+y+1=0

Answer:

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6. Number of tangents of $x^2 + y^2 - 25 = 0$

on $(4,\ \pm 3)$ are

A. a)0

B. b)1

C. c)2

D. d)3

Answer:

Vatch Video Solution 7. value of $\lim_{x \to 0} \frac{\cos x - 1}{x^2}$ is

A. a)-1/2

B. b)2

C. c)1

D. d)2

Answer:

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8. If at x = t, the derivative of f(x) is f'(t) then the value of $\lim_{x \to t} \frac{xf(t) - tf(x)}{x - t}$ is

A. a) tf(t) - f'(t)

B. b) f(t) - tf'(t)

C. c)
$$f(t) + tf(t)$$

D. d)
$$tf'(t) - f(t)$$

Answer:

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9. If the odds in favour of an event are 7 :1,

then the probability of occurrence is

B. b)1/7

C. c)1/5

D. d)7/8

Answer:

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10. Mode of .2, 7, 5, 3, 7, 1, 6, 9, 7, 3, 6, 3 is

A. a)3

B. b)7

C. c)6

D. d)2

Answer:



11. For any two sets A and B, Prove that

 $A\cup (A\cap B)=A.$

12. Show that
$$f(x) = \log \left[x + \sqrt{1 + x^2}
ight]$$
 is a

odd function.

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13. If $\tan 26^{\circ}$ and $\tan 19^{\circ}$ are the roots of the equation $ax^2 - bx - fc = 0$. Show that a - b = -fc.

14. If $\tan 15^\circ = x$.then show that $x^2 + 2\sqrt{3}x - 1 = 0$ Vatch Video Solution

15. In a quadratic equation of the form $ax^2 + bx + c = 6$ the co-efficient of x is misprinted 17 in the place for 13 and the roots are (-2) and (-15). Find the roots of the equation if correctly printed.



17. Prove that by using the principle of mathematical induction for all $n\in N$: $1^3+2^3+3^3+\ldots+n^3=\left(rac{n(n+1)}{2}
ight)^2$

18. In a n sided polygon joining by straight line all the angular points. . and obtained, the triangles are in number 5n' Find the value of n.



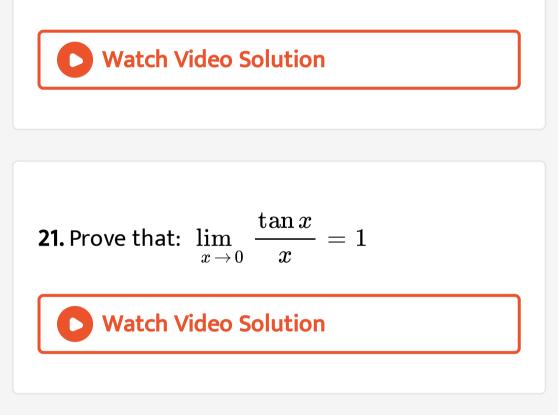
19. Find the equation of a straight line passes

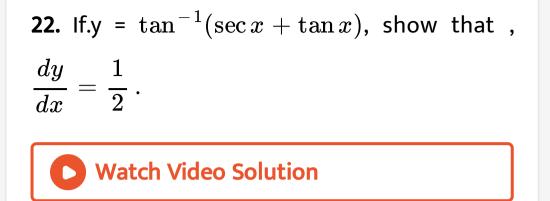
through (-3, 10) and the length of intercept by

the axes are equal.



20. Find the ratio in which the straight line 3x+ y = 9 divides the line segment joining the points (1, 3) and (2, 7).





23. A and B are two independent event. It P(A)

= 1/2 and $P(A \cup B)$ =2/3,find the value of P(B).



24. Find the mean deviation with respect ' to

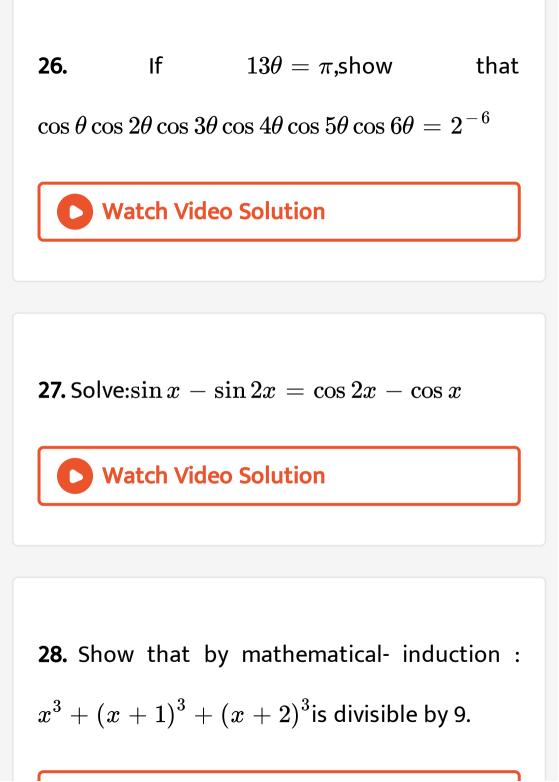
mean value :18,22,33,42,53,60.

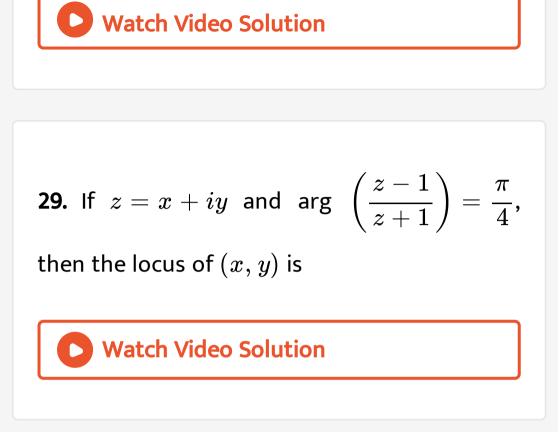
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25. Find the HCF of 15, 40, 60 with the help of

set theory







30. If the co-efficient of the (3r+1) th term is equal to the co-efficient of (r + 5) th term of the expansion of $(1 + x)^{32}$, find the value of r.

31. Find the sum of 1 + 5 + 12 + 22 + 35 +....upto

n term.



32. A straight line passes through A(1, 2) and makes an angle θ with the positive x axis. This .staight line intersects the straight line x + y = 4 at A_1 . If the distance from A to A_1 is $\frac{\sqrt{6}}{3}$, find the value of θ .

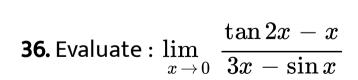


33. Find the equations of the lines, which cutoff intercepts on the axes whose sum and product are 1 and -6, respectively.

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34. The equation of circum circle of an equilateral triangle is $x^2 + y^2 + 2gx + 2fy + c = 0$.Find the area of the triangle.

35. A straight line passes through (h, k) and the middle point of the also (h, k). Show that the equation of straight line kx + hy = 2hk.



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37. From definition, differentiate cos4x at

'x=pi/6`,will respect to x.



38. Prove the following by contradiciton ."The sum of a rational and an irrational number is an irrational number?".



39. Show that $\sqrt{7}$ is an irrational, (use the

method of contradiction)

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40. If the variance of lst.n even natural

numbers is 65, find the value of n

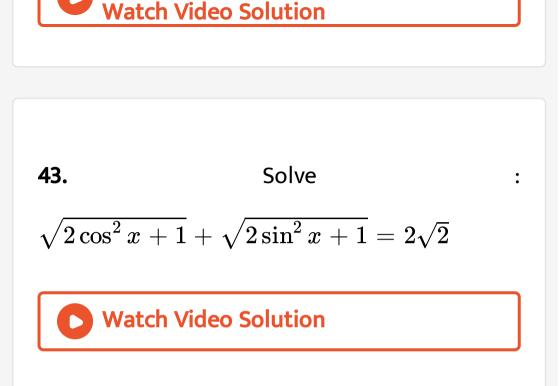


41. In on examination the probability of a student passed in physics is 2/3 , passed in both English, and physics is 14/45, If the probability of passing at least one subject is4/5 , find the probability of passing in English?

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42. If p
$$\sin(\alpha + \beta) = \cos(\alpha - \beta)$$
, show that
 $\frac{1}{1 - p\sin 2\alpha} + \frac{1}{1 - p\sin 2\beta} = \frac{2}{1 - P^2}$

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44. Exhibit graphically the solution region of the following system of 'inequations : $2x+y \ge 4$, $x+y \le 3$, $2x-3y \le 6$,x>0,y>0

45. If the roots of the equation $qx^2 + 2px + 2q = .0$ are real and unequal then prove that the roots of the equation $(p+q)x^2 + 2qx + (p-q) = 0$ are imaginary,

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46. Solve: $6x^2 - (18 + 5i)x + 18 + i = 0$

47. Out of 17 comodities 12 are same type and 5 are different type. Find the number of combinations if 13 comodities are taken at a time.

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48. Show that $x = ay^2 + by + c$ represents the equation of a parabola. Find the coordinate of its vertex and also find the length of its latus rectum



49. Find the following things of an ellipse $9x^2 + 4y^2 + 18x - 16y = 11$, co-ordinates of. centre, co-ordinates of foci, equation of directrices, length of latus rectum and eccentricity.

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50. If S, S' are the foci and' P any point on the rectangular hyperbola $x^2 - y^2 = a^2$, prove

that, \overline{SP} . $\overline{S'P} = CP^2$ where C is the centre of

the hyperbola

