



MATHS

BOOKS - JBD PUBLICATION

MODEL PAPER (9)



1. Which is the false statement?

A.
$$B-(a\cup C)=(B-C)-A$$

$$\mathsf{B}.\,A-(B\cup C)=(A-C)-B$$

$$\mathsf{C}.\,C-(B\cup A)=(C-B)-A$$

D.
$$A-(B\cup C)=(B-C)-A$$

Answer:



2. If $f(x) = 4x - x^2$ for all $x \in R$, then the value of f(a+1)-f(a-1) is:

A. 2(2-a)

B. 3(2-a)

C. 4(2-a)

D. 3(a-1)

Answer:

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3. The number of real solutions of the equations $\cos^7 x + \sin^4 x = 1$ in the interval $[-\pi, \pi]$ is:

A. 1

B. 3

C. 4

D. none of these

Answer:



4. If
$$rac{1-i}{1+i}=x+iy$$
, then x^2+y^2 is equal to:

B. -1

C. 0

D. none of these

Answer:



5. The number of permutations of all letters of word 'EXERCISES' is:

A. 40220

B. 30240

C. 20480

D. none of these

Answer:

6. If $\sum n=210$, then $\sum n^2$ is equal to:

A. 2870

B. 2670

C. 2570

D. none of these

Answer:



7. Slope of the line which cuts off intecepts of equal

length on the axis is?

A. -1

B. -2

C. 0

D. none of these

Answer:



8. The equation of circle having centre (0,0) and area 154 sq. units.

A.
$$x^2 + y^2 = 16$$

B.
$$x^2+y^2=49$$

$$\mathsf{C.}\,x^2+y^2=20$$

D. none of these

Answer:



9.
$$\lim_{x \to 0} \frac{\sqrt{1+x}-1}{x}$$
 is equal to:
A. 2
B. $\frac{1}{2}$
C. 1

D. none of these

Answer:



10. Six boys and six girls sit in a row randomly. The probability that the six girls sit together or the the boys and girls sit alternatly, is

A.
$$\frac{1}{332}$$

B. $\frac{1}{232}$
C. $\frac{1}{132}$

D. none of these

Answer:



11. If
$$\cos \theta + \sin \theta = \sqrt{2} \cos \theta$$
 ,then show that $\cos \theta - \sin \theta = \sqrt{2} \sin \theta$.

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12. An angle α is divided into two parts such that ratio of the tangent of the parts is k. if difference of

two parts, prove that

$$\sin x = \frac{k-1}{k+1} . \sin \alpha.$$

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13. Express
$$\left(5-3i
ight)^3$$
 in the form $a+ib$.

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expansion of $\left(x+y
ight)^n$ are 240 , 720 and 1080

respansion find x, y and n.

15. Find the middle terms in the expansion of (2) $\sqrt{7}$

$$\left(3-rac{x^3}{6}
ight)$$

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16. Three vertices of parallelogram ABCD are A(3,-1,2),

B(1,2,-4), C(-1,1,2). Find the co-ordinate of the fourth

vertex.

17. Write down the truth value of the following:

The number 19 is prime.



18. Write down the truth value of the following:

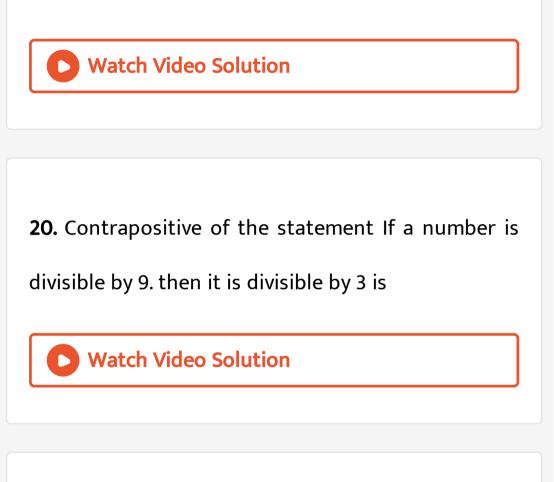
Every square is a rectangle.

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19. Write the contra positive of the following statements:

If you are born in India, then you are a citizen of

India.

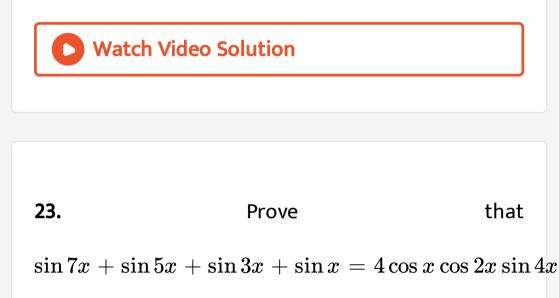


21. Let A and B be two non empty sets, then show

that A imes B = B imes A. If A=B

22. Let A={1,2,3}, B={2,3,4} and C={4,5}.n verify that:

 $A imes (B \cup C) = (A imes B) \cup (A imes C)$





24. Using Principle of Mathematical Induction, prove

that

 $\coslpha\cos 2lpha\cos 2lpha\cos 4lpha... \cos ig(2^{n-1}lphaig) = rac{\sin(2^nlpha)}{2^n\sinlpha}$

for all $n \in N$.



25. Out of 18 points in a plane, no three are in the same straight line except 5 point which are collinear. Find the number of lines that can be formed by joining them?



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27. If
$$rac{1}{6!} + rac{1}{7!} = rac{x}{8!}$$
, find x



28. Find the sum to n terms of the sequence 8, 88,

888, 8888,...



29. Find the equation of the line passing through the point (-3,2) which makes an angle 45° with the line x-2y=3.



30. Find the equation of the circle passing through the points.(2,-3) and (-1,1) whose centre is on the line x - 3y - 11 = 0.



31. Evaluate:
$$\lim_{x o 2} rac{x^3 - 4x^2 + 4x}{x^2 - 4}$$

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32. Find the derivative of (x+secx)(x-tanx)



33. A single letter is selected at random from the word PROBABILITY the probability that it is a vowel is:

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34. If E and F are events such that
$$P(E) = \frac{1}{4}$$
, $P(F) = \frac{1}{2}$ and P(E and F) $= \frac{1}{8}$. Find (i) P(E or F) (ii) P(not E and not F).

35. If E and F are events such that $P(E) = \frac{1}{4}$, $P(F) = \frac{1}{2}$ and P(E and F) $= \frac{1}{8}$. Find (i) P(E or F) (ii) P(not E and not F).

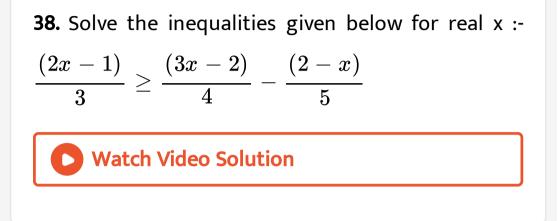
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36. If
$$(x+iy)^3=u+iv$$
, then show that $rac{u}{x}+rac{v}{y}=4ig(x^2-y^2ig)$



37. Express $(5-3i)^3$ in polar form.





39. Find all pairs of consecutive even positive integers, both of which are larger than 5 such that their sum is less than 23.



