

MATHS

BOOKS - OMEGA PUBLICATION

SAMPLE QUESTION PAPER -3

Section A 1 Mark

1. The set $A \cap A'$ is :

A. ϕ

В. ∪

C. A

D. A'

Answer:



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2. The maximum value of $(\cos\theta\sin\theta)$ is

A. 0

B. 1/2

$$C. -1$$

D.
$$-\sqrt{2}$$

Answer:



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3. Complex conjugate of i is:

A. i

 $\mathsf{B.}-i$

C. 0

D. 1

Answer:



- **4.** The value of $^{15}C_{11} \div ^{15}C_{10}$ equals :
 - A. 15/11
 - B. 15/10
 - C.5/11
 - D. 5/10

Answer:



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5. If a,b,c are in A.P. then:

A.
$$\frac{abc}{2}$$

B. 2b=a+c

C. 2abc

D. 4abc

Answer:

6. The locus of a point, show abscissa and ordinate are always equal is:

A.
$$x + y = 0$$

$$B. x - y = 0$$

C.
$$x + y = 1$$

D.
$$x + y + 1 = 0$$

Answer:



7. The equation $x^2 + 3y^2 - 9x + 2y + 1 = 0$ represents

A. ellipse

B. parabola

C. hyperbola

D. circle

Answer:



8. ਸੀਮਾਵਾਂ ਪਤਾ ਕਰੋ:-
$$\lim_{x o 3} \left[x(x+1)
ight]$$

A. 3

B. 12

C. 21

D. 0

Answer:



9. In a single throw of two dice, the probability of getting total of 7 or 9 is :

A.
$$\frac{4}{18}$$

$$\mathsf{B.}\;\frac{1}{3}$$

c.
$$\frac{5}{18}$$

D. None of these

Answer:



Section B 2 Mark

1. Prove that $\dfrac{\sin(x+y)}{\sin(x-y)} = \dfrac{\tan x + \tan y}{\tan x - \tan y}$



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2. Prove that $\sec \theta + \cos \theta$ can never be equal to $\frac{3}{2}$.



3. Solve $\sqrt{2}x^2 + x + \sqrt{2} = 0$



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Find the value of $(\sqrt{3} + \sqrt{2})^6 + (\sqrt{3} - \sqrt{2})^6$



5. Evaluate ${}^{10}C_1 + {}^{10}C_2 + \ldots + {}^{10}C_{10}$



6. Show that the points : (0,4,1),(2,3,-1),(4,5,0) and (2,6,2) are vertices of square.



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7. Show by contradiction $p=\sqrt{2}$ is irrational.



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Section C 4 Mark

1. Out of 500 car owners investigated, 400 owned car A and 200 owned car B, 50 pwned both A and B cars. Is the data correct?



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2. the following: Prove $\cos 4x = 1 - 8\sin^2 x \cos^2 x$



Prove the

following:

$$\cos 4x = 1 - 8\sin^2 x \cos^2 x$$



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4. If $2\tan\alpha=3\tan\beta$, show that

$$an(lpha-eta)=rac{\sin2eta}{5-\cos2eta}$$

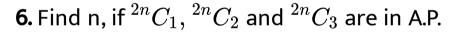


5. Using principle of mathematical induction,

prove that

$$\frac{1}{1.2} + \frac{1}{2.3} + \frac{1}{3.4} + \dots + \frac{1}{n(n+1)} = \frac{n}{n+1}$$







7. The sum of first three terms of a G.P. is $\frac{39}{10}$ and their product is 1. Find the common ratio and the terms.



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8. If a^2, b^2, c^2 are in A.P. Prove that $rac{a}{b+c}, rac{b}{c+a}, rac{c}{a+b}$ are also in A.P.



9. Find the length of major and minor axes, the the co-ordinates of foci, the vertices of the ellipse $3x^2+2y^2=18$.



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10. The foci of a hyperbola coincide with the foci of the ellipse $\frac{x^2}{25} + \frac{y^2}{9} = 1$, find the equation of hyperbola if ecentricity is 2.



11. Find the derivative of $\frac{\sin x}{1+\sin x}$ w.r.t., x

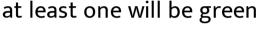


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12. A box contains 10 red marbles, 20 blue marbles and 30 green marbles. 5 marbles are drawn from the box, what is the probability that



13. A box contains 10 red marbles, 20 blue marbles and 30 green marbles. 5 marbles are drawn from the box, what is the probability that





Section D 6 Mark

- **1.** Find the modulus of $\frac{1+i}{1-i} \frac{1-i}{1+i}$.
 - **A**....

- **2.** Express $\frac{1+2i}{1-3i}$ in polar form.
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3. Solve the inequalities given below and represent the solution graphically on number line:-

$$5(2x-7)-3(2x+3)\leq 0, 2x+19\leq 6x+47$$



4. If $y=1+\frac{x}{1!}+\frac{x^2}{2!}+\frac{x^3}{3!}+\ldots+\frac{x^n}{n!},$ prove that $\frac{dy}{dx}+\frac{x^n}{n!}=y$



5. Use delta method to find the derivative of $\sin x + \cos x$.



6. Find the mean deviation from the mean for following the data 4, 7, 8, 9, 10, 12, 13, 17.

