Mathematics

Section Id :	405036435
Section Number :	3
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	25
Number of Questions to be attempted :	25
Section Marks :	100
Display Number Panel :	Yes
Group All Questions :	Yes
Mark As Answered Required? :	Yes
Sub-Section Number :	1
Sub-Section Id :	405036837
Question Shuffling Allowed :	Yes

Question Number : 51 Question Id : 40503611881 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The value of $\left(\frac{-1+i\sqrt{3}}{1-i}\right)^{30}$ is :

Options :

40503642986. 6^5

40503642987. -2^{15}

40503642988. $2^{15}i$

40503642989. $-2^{15}i$

Question Number : 51 Question Id : 40503611881 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

$\left(\frac{-1+i\sqrt{3}}{1-i}\right)^{30}$ का मान है :

Options :

40503642986. 6^5

40503642987. -2^{15}

40503642988. $2^{15}i$

40503642989. $-2^{15}i$

Question Number : 52 Question Id : 40503611882 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

If α and β are the roots of the equation, $7x^2-3x-2=0$, then the value of $\frac{\alpha}{1-\alpha^2}+\frac{\beta}{1-\beta^2}$ is equal to :

Options :

40503642990. $\frac{1}{24}$

40503642991. $\frac{27}{16}$

40503642992. $\frac{3}{8}$

40503642993. $\frac{27}{32}$

Question Number : 52 Question Id : 40503611882 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

यदि α तथा β समीकरण $7x^2-3x-2=0$ के मूल हैं, तो $\frac{\alpha}{1-\alpha^2}+\frac{\beta}{1-\beta^2}$ का मान है :

Options :

40503642990. $\frac{1}{24}$

40503642991. $\frac{27}{16}$

40503642992. $\frac{3}{8}$

40503642993. $\frac{27}{32}$

Question Number : 53 Question Id : 40503611883 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

If $a+x=b+y=c+z+1$, where a, b, c, x, y, z are non-zero distinct real numbers,

then $\begin{vmatrix} x & a+y & x+a \\ y & b+y & y+b \\ z & c+y & z+c \end{vmatrix}$ is equal to :

Options :

40503642994. $y(b-a)$

40503642995. $y(a-b)$

40503642996. 0

40503642997. $y(a-c)$

Question Number : 53 Question Id : 40503611883 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

यदि $a+x=b+y=c+z+1$ है, जहाँ a, b, c, x, y, z शून्येत्तर भिन्न वास्तविक संख्याएँ हैं, तो

$\begin{vmatrix} x & a+y & x+a \\ y & b+y & y+b \\ z & c+y & z+c \end{vmatrix}$ बराबर है :

Options :

40503642994. $y(b-a)$

40503642995. $y(a-b)$

40503642996. 0

40503642997. $y(a-c)$

Question Number : 54 Question Id : 40503611884 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

If the system of linear equations

$x+y+3z=0$

$x+3y+k^2z=0$

$3x+y+3z=0$

has a non-zero solution (x, y, z) for some

$k \in \mathbf{R}$, then $x+\left(\frac{y}{z}\right)$ is equal to :

Options :

40503642998. 3

40503642999. -3

40503643000. 9

40503643001. -9

Question Number : 54 Question Id : 40503611884 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option

Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

यदि रैखिक समीकरण निकाय

$x+y+3z=0$

$x+3y+k^2z=0$

$3x+y+3z=0$

का, किसी $k \in R$, के लिए, एक शून्येत्तर हल (x, y, z) है, तो $x+\left(\frac{y}{z}\right)$ बराबर है :

Options :

40503642998. 3

40503642999. -3

40503643000. 9

40503643001. -9

Question Number : 55 Question Id : 40503611885 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

There are 3 sections in a question paper and each section contains 5 questions. A candidate has to answer a total of 5 questions, choosing at least one question from each section. Then the number of ways, in which the candidate can choose the questions, is :

Options :

40503643002. 1500

40503643003. 3000

40503643004. 2255

40503643005. 2250

Question Number : 55 Question Id : 40503611885 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

एक प्रश्नपत्र में 3 खण्ड हैं तथा प्रत्येक खण्ड में 5 प्रश्न हैं। एक परीक्षार्थी को प्रत्येक खण्ड में से कम से कम एक प्रश्न चुनकर कुल 5 प्रश्नों के उत्तर देने हैं, तो परीक्षार्थी द्वारा इन प्रश्नों को चुनने के तरीकों की संख्या है :

Options :

40503643002. 1500

40503643003. 3000

40503643004. 2255

40503643005. 2250

Question Number : 56 Question Id : 40503611886 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

If the sum of the second, third and fourth terms of a positive term G.P. is 3 and the sum of its sixth, seventh and eighth terms is 243, then the sum of the first 50 terms of this G.P. is :

Options :

40503643006. $\frac{1}{26}(3^{50}-1)$

40503643007. $\frac{1}{13}(3^{50}-1)$

40503643008. $\frac{2}{13}(3^{50}-1)$

40503643009. $\frac{1}{26}(3^{49}-1)$

Question Number : 56 Question Id : 40503611886 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

यदि धनात्मक पदों की एक गुणोत्तर श्रेढ़ी के दूसरे, तीसरे तथा चौथे पदों का योगफल 3 है तथा इसके छटे, सातवें और आठवें पदों का योगफल 243 है, तो इस गुणोत्तर श्रेढ़ी के प्रथम 50 पदों का योगफल है :

Options :

40503643006. $\frac{1}{26}(3^{50}-1)$

40503643007. $\frac{1}{13}(3^{50}-1)$

40503643008. $\frac{2}{13}(3^{50}-1)$

40503643009. $\frac{1}{26}(3^{49}-1)$

Question Number : 57 Question Id : 40503611887 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

If the sum of the first 20 terms of the series $\log_{(7^{1/2})} x+\log_{(7^{1/3})} x+\log_{(7^{1/4})} x+\ldots$ is 460, then x is equal to :

Options :

40503643010. e^2

40503643011. $7^{1/2}$

40503643012. 7^2

40503643013. $7^{46/21}$

Question Number : 57 Question Id : 40503611887 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

यदि श्रेणी

$\log_{(7^{1/2})} x + \log_{(7^{1/3})} x + \log_{(7^{1/4})} x + \ldots$ के

प्रथम 20 पदों का योगफल 460 है, तो x बराबर है :

Options :

40503643010. e^2

40503643011. $7^{1/2}$

40503643012. 7^2

40503643013. $7^{46/21}$

Question Number : 58 Question Id : 40503611888 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

$$\lim_{x\to 0} \frac{x\left(e^{\left(\sqrt{1+x^2+x^4}-1\right)/x}-1\right)}{\sqrt{1+x^2+x^4}-1}$$

Options :

40503643014. does not exist.

40503643015. is equal to 1.

40503643016. is equal to 0.

40503643017. is equal to $\sqrt{e}$.

Question Number : 58 Question Id : 40503611888 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option

Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

$$\lim_{x\to 0}\frac{x\left(e^{\left(\sqrt{1+x^2+x^4}-1\right)/x}-1\right)}{\sqrt{1+x^2+x^4}-1}$$

Options :

40503643014. का अस्तित्व नहीं है।

40503643015. 1 के बराबर है।

40503643016. 0 के बराबर है।

40503643017. $\sqrt{e}$ के बराबर है।

Question Number : 59 Question Id : 40503611889 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The derivative of $\tan^{-1}\left(\frac{\sqrt{1+x^2}-1}{x}\right)$ with

respect to $\tan^{-1}\left(\frac{2x\sqrt{1-x^2}}{1-2x^2}\right)$ at $x=\frac{1}{2}$ is :

Options :

40503643018. $\frac{2\sqrt{3}}{3}$

40503643019. $\frac{\sqrt{3}}{12}$

40503643020. $\frac{\sqrt{3}}{10}$

40503643021. $\frac{2\sqrt{3}}{5}$

Question Number : 59 Question Id : 40503611889 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

$x=\frac{1}{2}$ पर $\tan^{-1}\left(\frac{\sqrt{1+x^2}-1}{x}\right)$ का

$\tan^{-1}\left(\frac{2x\sqrt{1-x^2}}{1-2x^2}\right)$ के सापेक्ष अवकलज है :

Options :

40503643018. $\frac{2\sqrt{3}}{3}$

40503643019. $\frac{\sqrt{3}}{12}$

40503643020. $\frac{\sqrt{3}}{10}$

40503643021. $\frac{2\sqrt{3}}{5}$

Question Number : 60 Question Id : 40503611890 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Which of the following points lies on the tangent to the curve $x^4e^y+2\sqrt{y+1}=3$ at the point $(1, 0)$?

Options :

40503643022. $(-2, 4)$

40503643023. $(2, 6)$

40503643024. $(2, 2)$

40503643025. $(-2, 6)$

Question Number : 60 Question Id : 40503611890 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

निम्न में से कौन सा बिंदु वक्र $x^4e^y+2\sqrt{y+1}=3$ के बिंदु $(1, 0)$ पर खींची गई स्पर्श रेखा पर स्थित है?

Options :

40503643022. $(-2, 4)$

40503643023. $(2, 6)$

40503643024. $(2, 2)$

40503643025. $(-2, 6)$

Question Number : 61 Question Id : 40503611891 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

If $x=1$ is a critical point of the function $f(x)=(3x^2+ax-2-a)\,e^x$, then :

Options :

40503643026. $x=1$ and $x=-\frac{2}{3}$ are local minima of f.

40503643027. $x=1$ and $x=-\frac{2}{3}$ are local maxima of f.

40503643028. $x=1$ is a local maxima and $x=-\frac{2}{3}$ is a local minima of f.

$x=1$ is a local minima and $x = -\frac{2}{3}$ is a local maxima of f.

40503643029.

Question Number : 61 Question Id : 40503611891 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

यदि $x=1$ फलन $f(x)=(3x^2+ax-2-a)\,e^x$ का एक क्रांतिक बिंदु (critical point) है, तो :

Options :

$x=1$ तथा $x = -\frac{2}{3}$, f के स्थानीय निम्नतम बिंदु हैं।

40503643026.

$x=1$ तथा $x = -\frac{2}{3}$, f के स्थानीय उच्चतम बिंदु है।

40503643027.

$x=1$, f का एक स्थानीय उच्चतम बिंदु है तथा $x = -\frac{2}{3}$, f का एक स्थानीय निम्नतम बिंदु है।

40503643028.

$x=1$, f का एक स्थानीय निम्नतम बिंदु है तथा $x = -\frac{2}{3}$, f का एक स्थानीय उच्चतम बिंदु है।

40503643029.

Question Number : 62 Question Id : 40503611892 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

If $\int \frac{\cos\theta}{5+7\sin\theta-2\cos^2\theta}d\theta = A\log_e|B(\theta)|+C$, where C is a constant of integration, then $\frac{B(\theta)}{A}$ can be :

Options :

40503643030. $\frac{2\sin\theta+1}{5(\sin\theta+3)}$

40503643031. $\frac{5(2\sin\theta+1)}{\sin\theta+3}$

40503643032. $\frac{2\sin\theta+1}{\sin\theta+3}$

40503643033. $\frac{5(\sin\theta+3)}{2\sin\theta+1}$

Question Number : 62 Question Id : 40503611892 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

यदि $\int\frac{\cos\theta}{5+7\sin\theta-2\cos^2\theta}d\theta=A\log_e|B(\theta)|+C$

है, जहाँ C एक समाकलन अचर है, तो $\frac{B(\theta)}{A}$ हो सकता है :

Options :

40503643030. $\frac{2\sin\theta+1}{5(\sin\theta+3)}$

40503643031. $\frac{5(2\sin\theta+1)}{\sin\theta+3}$

40503643032. $\frac{2\sin\theta+1}{\sin\theta+3}$

40503643033. $\frac{5(\sin\theta+3)}{2\sin\theta+1}$

Question Number : 63 Question Id : 40503611893 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The area (in sq. units) of the region $A=\{(x,y):(x-1)[x]\le y\le 2\sqrt{x}, 0\le x\le 2\}$, where [t] denotes the greatest integer function, is :

Options :

40503643034. $\frac{4}{3}\sqrt{2}-\frac{1}{2}$

40503643035. $\frac{8}{3}\sqrt{2}-1$

40503643036. $\frac{4}{3}\sqrt{2}+1$

40503643037. $\frac{8}{3}\sqrt{2}-\frac{1}{2}$

Question Number : 63 Question Id : 40503611893 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

क्षेत्र $A=\{(x,y):(x-1)[x]\le y\le 2\sqrt{x}, 0\le x\le 2\}$ जहाँ [t] महत्तम पूर्णांक फलन है, का क्षेत्रफल (वर्ग इकाइयों में) है :

Options :

40503643034. $\frac{4}{3}\sqrt{2}-\frac{1}{2}$

40503643035. $\frac{8}{3}\sqrt{2}-1$

40503643036. $\frac{4}{3}\sqrt{2}+1$

40503643037. $\frac{8}{3}\sqrt{2}-\frac{1}{2}$

Question Number : 64 Question Id : 40503611894 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Let $y=y(x)$ be the solution of the differential equation

$$\cos x\frac{dy}{dx}+2y\sin x=\sin 2x,\ x\in\left(0,\frac{\pi}{2}\right).$$

If $y(\pi/3)=0$, then $y(\pi/4)$ is equal to :

Options :

40503643038. $2-\sqrt{2}$

40503643039. $\sqrt{2}-2$

40503643040. $2+\sqrt{2}$

40503643041. $\frac{1}{\sqrt{2}}-1$

Question Number : 64 Question Id : 40503611894 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

माना $y=y(x)$, अवकल समीकरण

$$\cos x\frac{dy}{dx}+2y\sin x=\sin 2x,\ x\in\left(0,\frac{\pi}{2}\right)$$ का हल है। यदि $y(\pi/3)=0$ है तो $y(\pi/4)$ बराबर है :

Options :

40503643038. $2-\sqrt{2}$

40503643039. $\sqrt{2}-2$

40503643040. $2+\sqrt{2}$

40503643041. $\frac{1}{\sqrt{2}}-1$

Question Number : 65 Question Id : 40503611895 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

If the length of the chord of the circle, $x^2+y^2=r^2$ $(r > 0)$ along the line, $y-2x=3$ is r, then r^2 is equal to :

Options :

40503643042. $\frac{9}{5}$

40503643043. $\frac{12}{5}$

40503643044. $\frac{24}{5}$

40503643045. 12

Question Number : 65 Question Id : 40503611895 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

यदि वृत्त $x^2+y^2=r^2$ $(r > 0)$ की, रेखा $y-2x=3$ के अनुदिश, जीवा की लंबाई r है, तो r^2 बराबर है :

Options :

40503643042. $\frac{9}{5}$

40503643043. $\frac{12}{5}$

40503643044. $\frac{24}{5}$

40503643045. 12

Question Number : 66 Question Id : 40503611896 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

If the line $y = mx + c$ is a common tangent to the hyperbola $\frac{x^2}{100} - \frac{y^2}{64} = 1$ and the circle $x^2 + y^2 = 36$, then which one of the following is true ?

Options :

40503643046. $8m + 5 = 0$

40503643047. $5m = 4$

40503643048. $4c^2 = 369$

40503643049. $c^2 = 369$

Question Number : 66 Question Id : 40503611896 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

यदि रेखा $y = mx + c$ अतिपरवलय $\frac{x^2}{100} - \frac{y^2}{64} = 1$ तथा वृत्त $x^2 + y^2 = 36$ की एक उभयनिष्ठ स्पर्श रेखा है, तो निम्न में से कौन सा एक सही है?

Options :

40503643046. $8m + 5 = 0$

40503643047. $5m = 4$

40503643048. $4c^2 = 369$

40503643049. $c^2 = 369$

Question Number : 67 Question Id : 40503611897 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

If for some $\alpha \in \mathbf{R}$, the lines

$$L_1 : \frac{x+1}{2} = \frac{y-2}{-1} = \frac{z-1}{1} \text{ and}$$

$$L_2 : \frac{x+2}{\alpha} = \frac{y+1}{5-\alpha} = \frac{z+1}{1} \text{ are coplanar,}$$

then the line L_2 passes through the point :

Options :

40503643050. $(10, -2, -2)$

40503643051. $(10, 2, 2)$

40503643052. $(2, -10, -2)$

40503643053. $(-2, 10, 2)$

Question Number : 67 Question Id : 40503611897 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

यदि किसी $\alpha \in \mathbf{R}$ के लिए, रेखाएँ

$$L_1 : \frac{x+1}{2} = \frac{y-2}{-1} = \frac{z-1}{1} \text{ तथा}$$

$$L_2 : \frac{x+2}{\alpha} = \frac{y+1}{5-\alpha} = \frac{z+1}{1} \text{ समतलीय हैं, तो रेखा}$$

L_2 जिस बिंदु से होकर जाती है, वह है :

Options :

40503643050. $(10, -2, -2)$

40503643051. $(10, 2, 2)$

40503643052. $(2, -10, -2)$

40503643053. $(-2, 10, 2)$

Question Number : 68 Question Id : 40503611898 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

If the mean and the standard deviation of the data 3, 5, 7, a, b are 5 and 2 respectively, then a and b are the roots of the equation :

Options :

40503643054. $x^2 - 10x + 18 = 0$

40503643055. $x^2 - 10x + 19 = 0$

40503643056. $x^2 - 20x + 18 = 0$

40503643057. $2x^2 - 20x + 19 = 0$

Question Number : 68 Question Id : 40503611898 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

यदि आँकड़ों 3, 5, 7, a, b का माध्य तथा मानक विचलन क्रमशः 5 तथा 2 हैं, तो a तथा b जिस समीकरण के मूल हैं, वह है :

Options :

40503643054. $x^2 - 10x + 18 = 0$

40503643055. $x^2 - 10x + 19 = 0$

40503643056. $x^2 - 20x + 18 = 0$

40503643057. $2x^2 - 20x + 19 = 0$

Question Number : 69 Question Id : 40503611899 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

If $L = \sin^2\left(\frac{\pi}{16}\right) - \sin^2\left(\frac{\pi}{8}\right)$ and

$M = \cos^2\left(\frac{\pi}{16}\right) - \sin^2\left(\frac{\pi}{8}\right)$, then :

Options :

40503643058. $\therefore L = -\frac{1}{2\sqrt{2}} + \frac{1}{2}\cos\frac{\pi}{8}$

40503643059. $\therefore L = \frac{1}{4\sqrt{2}} - \frac{1}{4}\cos\frac{\pi}{8}$

40503643060. $M = \frac{1}{2\sqrt{2}} + \frac{1}{2}\cos\frac{\pi}{8}$

40503643061. $\therefore M = \frac{1}{4\sqrt{2}} + \frac{1}{4}\cos\frac{\pi}{8}$

Question Number : 69 Question Id : 40503611899 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

यदि $L = \sin^2\left(\frac{\pi}{16}\right) - \sin^2\left(\frac{\pi}{8}\right)$ तथा

$M = \cos^2\left(\frac{\pi}{16}\right) - \sin^2\left(\frac{\pi}{8}\right)$ हैं, तो :

Options :

40503643058. $\therefore L = -\frac{1}{2\sqrt{2}} + \frac{1}{2}\cos\frac{\pi}{8}$

40503643059. $\therefore L = \frac{1}{4\sqrt{2}} - \frac{1}{4}\cos\frac{\pi}{8}$

40503643060. $M = \frac{1}{2\sqrt{2}} + \frac{1}{2}\cos\frac{\pi}{8}$

40503643061. $M = \frac{1}{4\sqrt{2}} + \frac{1}{4}\cos\frac{\pi}{8}$

Question Number : 70 Question Id : 40503611900 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The statement

$(p \to (q \to p)) \to (p \to (p \vee q))$ is :

Options :

40503643062. a contradiction

40503643063. a tautology

40503643064. equivalent to $(p \vee q) \wedge (\sim p)$

40503643065. equivalent to $(p \wedge q) \vee (\sim q)$

Question Number : 70 Question Id : 40503611900 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

कथन $(p \to (q \to p)) \to (p \to (p \vee q))$:

Options :

40503643062. एक विरोधोक्ति है।

40503643063. एक पुनरुक्ति है।

40503643064. $(p \vee q) \wedge (\sim p)$ के समतुल्य है।

40503643065. $(p \wedge q) \vee (\sim q)$ के समतुल्य है।

Sub-Section Id : 405036838
Question Shuffling Allowed : Yes

Question Number : 71 Question Id : 40503611901 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 0

Let $A=\{a,b,c\}$ and $B=\{1,2,3,4\}$. Then the number of elements in the set $C=\{f : A \to B \mid 2 \in f(A)$ and f is not one-one$\}$ is _____.

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Range
Text Areas : PlainText
Possible Answers :
5 to 5.002

Question Number : 71 Question Id : 40503611901 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 0

माना $A=\{a, b, c\}$ तथा $B=\{1, 2, 3, 4\}$ हैं, तो समुच्चय $C=\{f: A \to B \mid 2 \in f(A)$ तथा f एकैकी नहीं है $\}$ के अवयवों की संख्या है _____।

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Range
Text Areas : PlainText
Possible Answers :
5 to 5.002

Question Number : 72 Question Id : 40503611902 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 0

The coefficient of x^4 in the expansion of $(1+x+x^2+x^3)^6$ in powers of x, is _____.

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Range
Text Areas : PlainText

Possible Answers :

5 to 5.002

Question Number : 72 Question Id : 40503611902 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 0

x की घातों में $(1+x+x^2+x^3)^6$ के प्रसार में x^4 का गुणांक है _____ ।

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Range
Text Areas : PlainText
Possible Answers :

5 to 5.002

Question Number : 73 Question Id : 40503611903 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 0

If the lines $x+y=a$ and $x-y=b$ touch the curve $y=x^2-3x+2$ at the points where the curve intersects the x-axis, then $\frac{a}{b}$ is equal to _____.

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Range
Text Areas : PlainText
Possible Answers :

5 to 5.002

Question Number : 73 Question Id : 40503611903 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 0

यदि रेखाएँ $x+y=a$ तथा $x-y=b$, वक्र $y=x^2-3x+2$ को उन बिन्दुओं पर स्पर्श करती हैं जहाँ यह वक्र x-अक्ष को काटता है, तो $\frac{a}{b}$ बराबर है _____ ।

Response Type : Numeric
Evaluation Required For SA : Yes

Show Word Count : Yes
Answers Type : Range
Text Areas : PlainText
Possible Answers :
5 to 5.002

Question Number : 74 Question Id : 40503611904 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 0

Let the vectors $\vec{a}, \vec{b}, \vec{c}$ be such that $|\vec{a}|=2, |\vec{b}|=4$ and $|\vec{c}| = 4$. If the projection of $\vec{b}$ on $\vec{a}$ is equal to the projection of $\vec{c}$ on $\vec{a}$ and $\vec{b}$ is perpendicular to $\vec{c}$, then the value of $|\vec{a} + \vec{b} - \vec{c}|$ is _____.

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Range
Text Areas : PlainText
Possible Answers :
5 to 5.002

Question Number : 74 Question Id : 40503611904 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 0

माना सदिश $\vec{a}, \vec{b}, \vec{c}$ इस प्रकार हैं कि $|\vec{a}|=2, |\vec{b}|=4$ तथा $|\vec{c}| = 4$ हैं। यदि $\vec{b}$ का $\vec{a}$ पर प्रक्षेप, $\vec{c}$ के $\vec{a}$ पर प्रक्षेप के समान है तथा $\vec{b}$ और $\vec{c}$ परस्पर लंबवत हैं तो $|\vec{a} + \vec{b} - \vec{c}|$ का मान है _____।

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Range

Text Areas : PlainText
Possible Answers :
5 to 5.002

Question Number : 75 Question Id : 40503611905 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 0

In a bombing attack, there is 50% chance that a bomb will hit the target. At least two independent hits are required to destroy the target completely. Then the minimum number of bombs, that must be dropped to ensure that there is at least 99% chance of completely destroying the target, is _____.

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Range
Text Areas : PlainText
Possible Answers :
5 to 5.002

Question Number : 75 Question Id : 40503611905 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 0

बमों के एक आक्रमण में, एक बम के लक्ष्य पर प्रहार करने की संभावना 50% है। लक्ष्य को पूरी तरह से नष्ट करने के लिए कम से कम दो स्वतंत्र प्रहारों की आवश्यकता है, तो लक्ष्य को पूरी तरह से नष्ट करने की संभावना कम से कम 99% सुनिश्चित करने के लिए गिराए जाने वाले बमों की न्यूनतम संख्या है _____।

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Range
Text Areas : PlainText
Possible Answers :
5 to 5.002