MATHS

BOOKS - TS EAMCET PREVIOUS YEAR PAPERS

TS EAMCET 2017

Mathematics

1. If $\tan 20^\circ = \lambda$ then show that $\frac{\tan 160^\circ - \tan 110^\circ}{1 + \tan 160^\circ . \tan 110^\circ} = \frac{1 - \lambda^2}{2\lambda}$.

A. $\frac{1 + \lambda^2}{2\lambda}$

B. $\frac{1 + \lambda^2}{\lambda}$

C. $\frac{1 - \lambda^2}{\lambda}$

D. $\frac{1-\lambda^2}{2\lambda}$

Answer: D

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2. Consider the circle $x^2 + y^2 - 6x + 4y = 12$ the equations of a tangent of this circle that is parallel to the line $4x + 3y + 5 = 0$ is

A. $4x + 3y + 10 = 0$

B. $4x + 3y - 9 = 0$

C. $4x + 3y + 9 = 0$

D. $4x + 3y - 25 = 0$

Answer: D

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3. The mean deviation from the mean 10 of the data 6,7,10,12,13,alpha ,12,16` is

A. $3, 5$

B. 3.25

C. 3

D. 3.75

Answer: B

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4. Match the following

	List I		List II
I.	$\int_{-1}^{1} x\|x\|dx$	(a)	$\frac{\pi}{2}$
II.	$\int_0^{\frac{\pi}{2}}\left(1+\log\left(\frac{4+3\sin x}{4+3\cos x}\right)\right)dx$	(b)	$\int_0^{\frac{a}{2}} f(x)\,dx$
III.	$\int_0^a f(x)dx$	(c)	$\int_0^a [f(x)+f(-x)]dx$
IV.	$\int_{-a}^{a} f(x)dx$	(d)	0
		(e)	$\int_0^a f(a-x)\,dx$

A.
I	II	III	IV
d	a	e	c

B.
I	II	III	IV
d	a	c	b

C.
I	II	III	IV
d	c	a	e

D.
I	II	III	IV
a	d	b	c

Answer: A

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5. IF f is differentiable $f(x+y)=f(x)f(y)$ for all $x, y, \in IR$ f(3) = 3, f'(0) = 11 ,` then f'(3) =

A. $\frac{3}{11}$

B. $\frac{11}{3}$

C. 8

D. 33

Answer: D

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6. $\int_0^{\pi} \frac{xdx}{4\cos^2 x + 9\sin^2 x} =$

A. $\frac{\pi^2}{12}$

B. $\frac{\pi^2}{4}$

C. $\frac{\pi^2}{6}$

D. $\frac{\pi^2}{3}$

Answer: A

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7. The prabability distribution of a random variable x is given below

$x = k$	0	1	2	3	4
$p(x = k)$	0.1	0.4	0.3	0.2	0

The variance of X is

A. 1.6

B. 0.24

C. 0.84

D. 0.75

Answer: C

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8. If $A = \begin{bmatrix} 1 & 0 & 1 \\ 0 & 2 & 0 \\ 1 & -1 & 4 \end{bmatrix}$, $A = B + C$, $B = B^T$ and $C = -C^T$, then C=

A. $\begin{bmatrix} 0 & 0.5 & 0 \\ -0.5 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$

B. $\begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0.5 \\ 0 & -0.5 & 0 \end{bmatrix}$

C. $\begin{bmatrix} 0 & -0.5 & 0.5 \\ 0.5 & 0 & 0 \\ -0.5 & -0.5 & 0 \end{bmatrix}$

D. $\begin{bmatrix} 0 & 0.5 & 0 \\ -0.5 & 0 & 0.5 \\ 0 & -0.5 & 0 \end{bmatrix}$

Answer: B

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9. IF a is a unit vector , then $\left|a \times \hat{i}\right|^2 + \left|a \times \hat{j}\right|^2 + \left|a \times \hat{k}\right|^2 =$

A. 2

B. 4

C. 1

D. 0

Answer: A

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10. A bag contains 5 red balls , 3 black balls and 4 white balls . There balls are drawn at random. The propability that they are not of same colour is

A. $\frac{37}{44}$

B. $\frac{31}{44}$

C. $\frac{21}{44}$

D. $\frac{41}{44}$

Answer: D

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11. The radical centre of the circles $x^2 + y^2 - 4x - 6y + 5 = 0$, $x^2 + y^2 - 2x - 4y - 1 = 0$ and $x^2 + y^2 - 6x - 2y = 0 = 0$ lies on the line

A. $x + y - 5 = 0$

B. $2x - 4y + 7 = 0$

C. $4x - 6y + 5 = 0$

D. $18x - 12y + 1 = 0$

Answer: D

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12. IF $\cos ec\theta - \cot\theta = 2017$ then quadrant in which θ lies is

A. I

B. IV

C. III

D. II

Answer: D

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13. IF $\int e^{2x} f'(x) dx = g(x)$, then $\int \left(e^{2x} f(x) + e^{2x} f'(x)\right) dx =$

A. $\frac{1}{2}\left[e^2 x f(x) - g(x)\right] + C$

B. $\frac{1}{2}\left[e^{2x} f(x) + g(x)\right] + c$

C. $\frac{1}{2}\left[e^{2x} f(2x) + g(x)\right] + C$

D. $\frac{1}{2}\left[e^{2x}f'(x)+g(x)\right]+c$

Answer: A

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14. IF $A=(5,3), B=(3,-2)$ and a point P is such that the area of the triangle PAB is 9 then the locus of P represents

A. a circle

B. a pair of coincident lines

C. a pair of parallel lines

D. A pair of perpoendicular lines

Answer: C

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15. A straight line makes an intercept on the Y- axis twice as long as that on X - axis and is at unit distance from the origin then the line is represented by the equations

A. $2x + 3y = \pm\sqrt{5}$

B. $x + y = \pm 2$

C. $x + y = \pm 2$

D. $2x + y = \pm\sqrt{5}$

Answer: D

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16. Let S and s' be the foci of an ellipse and B be one end of its minor axis . If SBS' is a isosceles right angled triangle then the eccentricity of the ellipse is

A. $\frac{1}{\sqrt{2}}$

B. $\frac{1}{2}$

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

D. $\frac{1}{3}$

Answer: A

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17. For the parabola $y^2 + 6y - 2x = -5$

I. The vertex is $(-2, -3)$

II. The directrix is $y + 3 = 0$

which of the following is correct ?

A. Both I and II are correct

B. I is true ,II is false

C. Both I and II are false

D. I is false , II is true

Answer: B

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18. IF $\frac{x^2 + 5}{(x^2 + 1)(x - 2)} = \frac{A}{x - 2} + \frac{bx + C}{x^2 + 1}$ then A + B + C =

A. -1

B. $\frac{2}{5}$

C. $\frac{-3}{5}$

D. 0

Answer: C

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19. IF the conjugate of $(x+iy)(1-2i)$ is (1 +i) then

A. $x+iy=1-i$

B. $x+iy=\frac{1-i}{1-2i}$

C. $x-iy=\frac{1-i}{1+2i}$

D. $x-iy=\frac{1-i}{1+i}$

Answer: B

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20. $\int x^4 e^{2x} dx =$

A. $\frac{e^{2x}}{4}\left(2x^4 - 4x^3 + 6x^2 - 6x + 3\right) + C$

B. $\frac{e^{2x}}{2}\left(2x^4 - 4x^3 + 6x^2 - 6x + 3\right) + C$

C. $\frac{e^{2x}}{8}\left(2x^4 - 4x^3 + 6x^2 - 6x + 3\right) + C$

D. $-\frac{e^{2x}}{4}\left(2x^4 - 4x^3 + 6x^2 - 6x + 3\right) + C$

Answer: A

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21. The sides of a triangle are in the ratio $1:\sqrt{3}:2$ then the angles are in the ratio

A. $1:2:3$

B. $1:2:4$

C. $1:4:5$

D. $1:3:5$

Answer: A

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22. The sum of the complex roots of the equations $(x-1)^3+64=0$ is

A. 6

B. 3

C. 6i

D. $3i$

Answer: B

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23. The area of the region bounded by the curves $x = y^2 - 2$ and $x = y$ is

A. $\frac{9}{4}$

B. 9

C. $\frac{9}{2}$

D. $\frac{9}{7}$

Answer: C

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24. IF $a = x\hat{i} + y\hat{j} + z\hat{k}$ then $\left(a \times \hat{i}\right).\left(\hat{i} + \hat{j}\right) + \left(a \times \hat{j}\right).\left(\hat{j} + \hat{k}\right) + \left(a \times \hat{k}\right).\left(\hat{k} + \hat{i}\right) =$

A. $x - y + z$

B. $x + y + z$

C. $x + y - z$

D. $-x + y + z$

Answer: B


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25. If the imageinary part of $\frac{2z+1}{Iz+1}$ is -2 then the locus of the point representing z in the complex plane is

A. a circle

B. A parabola

C. A straight line

D. an ellipse

Answer: B

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26. Let $f:(-1,1) \to IR$ be a differentiable function with f(0) =- 1 and f'(0) =1 IF $g(x) = \{f(2f(x)+2)\}^2$, then $g'(0)$ =

A. 0

B. -2

C. 4

D. -4

Answer: D

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27. IF the perpendicular distance between the point (1,1) to the line $3x + 4y + c = 0$ is 7, then the possible values of c are

A. $-35, 42$

B. $35, 28$

C. $42, -28$

D. $28, -42$

Answer: D

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28. The solution of $\frac{dy}{dx} = \frac{x+y}{x-y}$ is

A. $\tan^{-1}\left(\frac{y}{x}\right) = \log\sqrt{x^2+y^2} + C$

B. $\tan^{-1}\left(\frac{y}{x}\right) = \log\sqrt{(x^2-y^2)+c}$

C. $\sin^{-1}\left(\frac{y}{x}\right)\log\sqrt{x^2+y^2} + c$

D. $\cos^{-1}\left(\frac{y}{x}\right) = \log\sqrt{x^2-y^2} + C$

Answer: A

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29. IF $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1, then \frac{d^2y}{dx^2} =$

A. $-\frac{b^4}{a^2y^3}$

B. $\frac{b^2}{ay^2}$

C. $\frac{-b^3}{a^2y^3}$

D. $\frac{b^3}{a^2y^2}$

Answer: A

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30. $\lim_{y \to 1} \left(\frac{1}{y^2 - 1} - \frac{2}{y^4 - 1} \right) =$

A. $\frac{1}{2}$

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

C. $\frac{1}{4}$

D. 0

Answer: A

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31. The solution of $\left(y-3x^2\right)dx+xdy=0$ is

A. $y(x)=\sin x+\frac{1}{x^2}+C$

B. $y(x)=\cos x-\frac{1}{x^2}+C$

C. $y(x)=x^2+\frac{C}{x}$

D. $y(x)=\sqrt{x}+\frac{C}{x}$

Answer: C

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32. If the coefficients of (2r +1) thterm and $(r+1)^{th}$ term in the expansion of $(1+x)^{42}$ are equal then r can be

A. 12

B. 14

C. 16

D. 20

Answer: B

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33. A point on the plane that passes through the points $(1, -1, 6), (0, 0, 7)$ and perpendicular to the plane $x - 2y + z = 6$ is

A. $(1, -1, 2)$

B. $(1, 1, 2)$

C. $(-1, 1, 2)$

D. $(1, 1, -2)$

Answer: B

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34. If the slope of the tangent of the curce $y = ax^3 + bx + 4at$ (2,14) is 21 then the values of a and b respectively

A. $2, -3$

B. $3, -2$

C. $-3, \ -2$

D. $2, 3$

Answer: A

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35. The probability distribution of a random variable X is given below

x	1	2	3	4	5	6
$p(X=x)$	a	ea	a	b	b	0.3

IF mean of X is 4.2 then a and b are respectively equal to

A. $0.3, 0.2$

B. $0.1, 0.4$

C. $0.1, 0.2$

D. $0.2, 0.1$

Answer: C

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36. Let f(x) be a quadratic expression such that $f(0) + f(1) = 0$. If $f(-2) = 0$ then

A. $f\left(\frac{-2}{5}\right) = 0$

B. $f\left(\frac{2}{5}\right) = 0$

C. $f\left(\frac{-3}{5}\right) = 0$

D. $f\left(\frac{3}{5}\right) = 0$

Answer: D

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37. The equation of tangent to the curve $\left(\frac{x}{a}\right)^n + \left(\frac{y}{b}\right)^n = 2$ at the point (a,b) is

A. $\frac{x}{a} = -\frac{y}{b}$

B. $\frac{x}{a} + \frac{y}{b} = 2$

C. $\frac{x}{a} = \frac{y}{b}$

D. $\frac{x}{a} + \frac{y}{b} = n$

Answer: B

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38. IF the line $x + y + k = 0$ is a normal to the hyperbola $\frac{x^2}{9} - \frac{y^2}{4} = 1$ then $k =$

A. $\pm \frac{\sqrt{5}}{13}$

B. $\pm \frac{13}{\sqrt{5}}$

C. $\pm \frac{13}{5}$

D. $\pm \frac{5}{13}$

Answer: B

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39. The product of all the real roots of $X^2 - 8x + 9 - \frac{8}{x} + \frac{1}{x^2} = 0$ is

A. 2

B. 1

C. 3

D. 7

Answer: B

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40. IF $\Delta = \begin{vmatrix} 1 & 5 & 6 \\ 0 & 1 & 7 \\ 0 & 0 & 1 \end{vmatrix}$ and $\Delta' = \begin{vmatrix} 1 & 0 & 1 \\ 3 & 0 & 3 \\ 4 & 6 & 100 \end{vmatrix}$ then

A. $\Delta^2 - 3\Delta' = 0$

B. $\left(\Delta + \Delta^f\right)^2 - 3\left(\Delta + \Delta^f\right) + 5 = 0$

C. $\left(\Delta + \Delta^f\right)^2 + 3(\delta + \Delta^r) + 5 = 0$

D. $\Delta + 3\Delta^r + 1 = 0$

Answer: B

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41. A village has 10 players . A team of 6 players is to be formed . 5 members are chosen out of these 10 players from the remaining players . Them total number of ways of choosing such teams is

A. 1260

B. 210

C. $\left({}^{10}C_6\right)5!$

D. $\left({}^{10}C_5\right)6$

Answer: A

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42. The equation of the straight line passing through the point of intersection of $5x - 6y - 1$, $3x + 2y + 5 = 0$ and perpendicular to the line $3x - 5y + 11 = 0$ is

A. $5x + 3y + 18 = 0$

B. $-5x - 3y + 18 = 0$

C. $5x + 3y + 8 = 0$

D. $5x + 3y - 8 = 0$

Answer: C

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43. An integer is chosen from $\{2K / -9 \leq K \leq 10\}$. the probability that it is divisible by both 4 and 6 is

A. $\frac{1}{10}$

B. $\frac{1}{20}$

C. $\frac{1}{4}$

D. $\frac{3}{20}$

Answer: D

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44. $\int \frac{dx}{x(x^4+1)} =$

A. $\frac{1}{4}\log\left(\frac{x^4+1}{x^4}\right)+c$

B. $\frac{1}{4}\log\left(\frac{x^4}{x^4+1}\right)+c$

C. $\frac{1}{4}\log(x^4+1)+c$

D. $\frac{1}{4}\log\left(\frac{x^4}{x^4+2}\right)+C$

Answer: B

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45. $\frac{\sin^{-1}\left(\sqrt{3}\right)}{2}+\sin^{-1}\sqrt{\frac{2}{3}}=$

A. $\frac{\sin^{-1}\left(\sqrt{3}+\sqrt{2}\right)}{2\sqrt{3}}$

B. $\pi-\sin^{-1}\left(\frac{\sqrt{3}+\sqrt{2}}{2\sqrt{3}}\right)$

C. $-\pi-\sin^{-1}\left(\frac{\sqrt{3}+\sqrt{2}}{2\sqrt{3}}\right)$

D. $\pi + \sin^{-1}\left(\frac{\sqrt{3}+\sqrt{2}}{2\sqrt{3}}\right)$

Answer: B

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46. α and β are the roots of $x^2 + 2x + c = 0$. IF $\alpha^3 + \beta^3 = 4$, then the value of C is

A. -2

B. 3

C. 2

D. 4

Answer: C

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47. IF the slope of the tangent of the circle $S = -x^2 + y^2 - 13 = 0$ at (2,3) is m , then the point $\left(m, \frac{-1}{m}\right)$ is

A. an external point with respect to the circle S=0

B. an internal point with respect to the circles S=0

C. The centre of the circle S=0

D. A point on the circle S=0

Answer: B

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48. Using the letters of the word TRICK , a five letter word with distinct letters is formed such that C is in the middle . In how many ways this is possible ?

A. 6

B. 120

C. 24

D. 72

Answer: C

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49. The angle between the curve $x^2 = 8y$ and $xy = 8$ is

A. $\tan^{-1}\left(\frac{-1}{3}\right)$

B. $\tan^{-1}(-3)$

C. $\tan^{-1}(-\sqrt{3})$

D. $\tan^{-1}\left(\frac{-1}{\sqrt{3}}\right)$

Answer: B

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50. $f:(-\infty, 0] \to [0, \infty]$ is defined as f(x) $= x^2$. The domain and range of its inverse is

A. Domain $\left(f^{-1}\right) = [0, \infty)$, range of $\left(f^{-1}\right) = (-00, 0]$

B. Domain of $(f^{-1}) = [0, \infty)$, range of $(f^{-1}) = (-\infty, \infty]$

C. Domain of $f^{-1} = [0, \infty)$, range of $(f^{-1}) = (0, \infty)$

D. f^{-1} does not exist

Answer: A

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51. If a, b and c are unit vectors such that $a + b + c = 0$ and $(a, b) = \frac{\pi}{3}$, then $|a \times b| + |b \times c| + |c \times a| =$

A. $\frac{3}{2}$

B. 0

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

D. 3

Answer: C

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52. The differential equation of the simple harmonic motion given by $x = A\cos(nt + \alpha)$ is

A. $\frac{d^2x}{dt^2} - n^2x = 0$

B. $\frac{d^2}{dt^2} + n^2x = 0$

C. $\frac{dx}{dt} - \frac{d^2x}{dt^2} = 0$

D. $\frac{d^2x}{dt^2} - \frac{dx}{dt} + nx = 0$

Answer: B

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53. If a and b are unit vectors and α is the angle between them , then a+b is unit vector when $\cos\alpha$=

A. $-\frac{1}{2}$

B. $\frac{1}{2}$

C. $-\frac{\sqrt{3}}{2}$

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

Answer: A

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54. A parallelogram has vertices $A(4, 4, -1), B(5, 6, -1), C(6, 5, 1)$ and $D(x, y, z)$. Then

the vertex D is

A. $(5, 1, 0)$

B. $(-5, 0, 1)$

C. $(5, 3, 1)$

D. $(5, 1, 3)$

Answer: C

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55. IF $2x^2 - 10xy + 2\lambda y^2 + 5x - 16y - 3 = 0$ represents a pair of straight lines , then point of intersection of those lines is

A. $(2, -3)$

B. $(5, -16)$

C. $\left(-10, \frac{-7}{2}\right)$

D. $\left(-10, \frac{-3}{2}\right)$

Answer: C

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56. IF rank of $\begin{pmatrix} x & x & x \\ x & x^2 & x \\ x & x & x+1 \end{pmatrix}$ is 1 , then

A. $x = 0$ or $x = 1$

B. x=1

C. x=0

D. $x \neq 0$

Answer: C

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57. IF the vectors $a = \hat{i} + \hat{j} + \hat{k}, b = \hat{i} - \hat{j} + 2\hat{k}$ and $c = x\hat{i} + (x-2)\hat{j} - \hat{k}$ are coplanar , then x=

A. 1

B. 2

C. 0

D. -2

Answer: D

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58. In order to eliminate the first degree terms form the equation

$4x^2 + 8xy + 10y^2 - 8x - 44y + 14 = 0$ the point to which the origin has to be shifted is

A. $(-2, 3)$

B. $(2, -3)$

C. $(1, -3)$

D. $(-1, 3)$

Answer: A

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59. Two circles of equal radius a cut orthogonally . If their centres are (2,3) and (5,6) then radical axis of these circles passes through the point

A. $(3a, 5a)$

B. $(2a, a)$

C. $\left(a, \frac{5a}{3}\right)$

D. (a, a)

Answer: C

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60. IF $\tan\theta_1 = k\cot\theta_2,$ then $\frac{\cos(\theta_1 + \theta_2)}{\cos(\theta_1 - \theta_2)}$=

A. $\frac{1+k}{1-k}$

B. $\frac{1-k}{1+K}$

C. $\frac{k+1}{k-1}$

D. $\frac{k-1}{k+1}$

Answer: B

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61. Let $a = 2\hat{i} + \hat{j} - 3\hat{k}$ and $b - \hat{i} + 3\hat{j} + 2\hat{k}$. then the volume of the parallelopiped having coterminous edges as a,b, and c where c is the vector perpendicular to the plane of a,b and $|c| = 2$ is

A. $2\sqrt{195}$

B. 24

C. $\sqrt{200}$

D. $\sqrt{195}$

Answer: A

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62. The local maximum of $y = x^3 - 3x^3 + 5$ is attained at

A. x=0

B. x=2

C. x=1

D. x=-1

Answer: A

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63. In the expansion of $(1+x)^n$, the coefficients of pth and (p+1) th terms are respectively p and q then p+q=

A. n+3

B. n+2

C. n

D. n+1

Answer: D

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64. If $f(x) = \begin{cases} \sin x & \text{if } x \leq 0 \\ x^2 + a^2 & \text{if } 0 < x < 1 \\ bx + 2 & \text{if } 1 \leq x \leq 2 \\ 0 & \text{if } x > 2 \end{cases}$

is continuous On R then a + b +ab =

A. -2

B. 0

C. 2

D. -1

Answer: D

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65. IF $\cos h^{-1} x = 2 \log_e \left(\sqrt{2} + 1\right)$, then x=

A. 1

B. 2

C. 4

D. 3

Answer: D

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66. For any integer $n \geq 1$, $\sum_{k=1}^{n} K(K+2)$=

A. $\frac{n(n+1)(n+2)}{6}$

B. $\frac{n(n+1)(2n+7)}{6}$

C. $\frac{n(n+1)(2n+1)}{6}$

D. $\frac{n(n-1)(2n+8)}{6}$

Answer: B

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67. The foci of the ellipse

$25x^2 + 4y^2 + 100x - 4y + 100 = 0$ are

A. $\left(\frac{5 \pm \sqrt{21}}{10}, 2\right)$

B. $\left(-2, \frac{5 \pm \sqrt{21}}{10}\right)$

C. $\left(\frac{2 \pm \sqrt{21}}{10}, 2\right)$

D. $\left(-2, \frac{2 \pm \sqrt{21}}{10}\right)$

Answer: B

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68. $\left[\frac{1+\cos\left(\frac{\pi}{12}\right)+i\sin\left(\frac{\pi}{12}\right)}{1+\cos\left(\frac{\pi}{12}\right)-i\sin\left(\frac{\pi}{12}\right]^{72}}\right.$

A. 0

B. -1

C. 1

D. $\frac{1}{2}$

Answer: C

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69. If the range of the function $f(x) = -3x-3$ is { 3,-6,-9,-18}` , then which of the following elements is not in the domain of f ?

A. -1

B. -2

C. 1

D. 2

Answer: A

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70. In ΔABC if a=-1,b=2, $\angle C = 60^\circ$ then $4\Delta^2 + c^2$ =

A. 6

B. 3

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

D. 9

Answer: A

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71. IF the magnitudes of a,b, and a+b are respectively 3,4 and 5 then the magnitude of (a-b) is

A. 3

B. 4

C. 6

D. 5

Answer: D

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72. IF $\int f(x)\cos x dx = \frac{1}{2}(f(x))^2 + C$ and $f(0) = 0$ then $f'(0) =$

A. 1

B. -1

C. 0

D. 2

Answer: A

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73. IF α and βare the roots of the equation $ax^2 + bx + c = 0$ and the equation having roots $\frac{1-\alpha}{\alpha}$ and $\frac{1-\beta}{\beta}$ is $px^2 + qx + r = 0$ then r=

A. $a + 2b$

B. $ab + bc + ca$

C. $a + b + c$

D. abc

Answer: C

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74. IF $A\left(\frac{\pi}{3}\right), B\left(\frac{\pi}{6}\right)$ are the points on the circle represented in parametric from with centre (0,0) and radius 12 then the length of the chord AB is

A. $6\left(\sqrt{6-\sqrt{2}}\right)$

B. $6\left(\sqrt{6}-\sqrt{3}\right)$

C. $\sqrt{2}(\sqrt{3}-1))$

D. $6(\sqrt{3}-1))$

Answer: A

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75. IF the pair of straight lines $xy-x-y+1=0$ and the line $x+ay-3=0$ are concurrent then the acute angle between the pair of lines $ax^2-13xy-7y^2+x+23y-6=0$ is

A. $\cos^{-1}\left(\frac{5}{\sqrt{218}}\right)$

B. $\cos^{-1}\left(\frac{1}{\sqrt{10}}\right)$

C. $\cos^{-1}\left(\frac{5}{\sqrt{173}}\right)$

D. $\cos^{-1}\left(\frac{1}{\sqrt{5}}\right)$

Answer: B

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76. The number of solutions of $\cos 2\theta = \sin\theta$ in $(0, 2\pi)$ is

A. A. 4

B. B. 3

C. C. 2

D. D. 5

Answer: B

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77. The length of the sides of a triangle are 13 , 14 and 15 if R and r respectively denote circumradius nad inradius of that triangle then $8R + r$=

A. 84

B. $\frac{65}{8}$

C. 4

D. 69

Answer: D

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78. IF A and B are variances of the 1^{st} 'n' even number and 1^{st} 'n' odd numbers respectively then

A. $A = B$

B. $A > B$

C. $A < B$

D. $A = B - 1$

Answer: A

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79. IF the line $x - y = -4k$ is a tangent to the parabola $y^2 = 8x$ at P , then the perpendicular distance of normal at P from (k , 2k) is

A. $\frac{5}{2\sqrt{2}}$

B. $\frac{7}{2\sqrt{2}}$

C. $\frac{9}{2\sqrt{2}}$

D. $\frac{1}{2\sqrt{2}}$

Answer: C

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80. IF A and B are events having probabilities P(A) = 0.6 ,P(B) = 0.4 and $P(A \cap B) = 0$, then probability that neither A nor B occurs is

A. $\frac{1}{4}$

B. 1

C. $\frac{1}{2}$

D. 0

Answer: D