MATHS

BOOKS - DEEPTI MATHS (TELUGU ENGLISH)

EAMCET - 2016 AP

Questions

1. The domain of the function $f(x) = \sqrt{\log_{0.5} X!}$

A. {0, 1, 2, 3,...}

B. {1,2,3,....}

C. $(0, \infty)$

D. {0, 1}

Answer: D

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2. If $f(x) = |x-1| + |x-2| + |x-3|$ when $2 < x < 3$ is

A. an onto function but not one-one

B. one-one function but not onto

C. a bijection

D. neither one-one nor onto

Answer: C

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3. The greatest positive integer which divides (n+16) (n+17) (n+18)(n+19), for all positive integers n is

A. 6

B. 24

C. 28

D. 20

Answer: B

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4. If a,b,c are positive and not all equal then $\begin{vmatrix} a & b & c \\ b & c & a \\ c & a & b \end{vmatrix}$

A. < 0

B. > 0

C. 0

D. ≥ 0

Answer: A

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5. If x_1, x_2, x_3 as well as y_1, y_2, y_3 are in G.P with same common ratio, then the points $P(x_1, y_1), Q(x_2, y_2)$ and $R(x_3, y_3)$

A. vertics of an equilateral triangle

B. vertices of a right angled triangle

C. vertices of a right angled isosceles triangle

D. collinear

Answer: D

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6. The equations $x - y + 2z = 4$

$3x + y + 4z = 6$

$x + y + z = 1$ have

A. unique solution

B. infinitely many solutions

C. no solutions

D. two solutions

Answer: B

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7. The locus of the point representing the complex number z for which $|z+3|^2 - |z-3|^2 = 15$ is

A. a circle

B. a parabola

C. a straight line

D. an ellipse

Answer: C

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8. $\frac{(1+i)^{2016}}{(1-i)^{2014}}$ =

A. $-2i$

B. 2i

C. 2

D. -2

Answer: A

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9. If $|z_1| = 1, |z_2| = 2, |z_3| = 3$ and $|9z_1z_2 + 4z_1z_3 + z_2z_3| = 12,$ then the value of $|z_1 + z_2 + z_3|$ is

A. 3

B. 4

C. 8

D. 2

Answer: D

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10. If $1, z_1 z_2, \ldots\ldots z_{n-1}$ are the $n^t h$ roots of unity, then $(1-z_1)(1-z_2)\ldots\ldots(1-z_{n-1}) = .$

A. 0

B. $n-1$

C. n

D. 1

Answer: C

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11. If $12^{4+2x^2} = \left(24\sqrt{3}\right)^{3x^2-2}$, then x =

A. $\pm\frac{\sqrt{13}}{12}$

B. $\pm\frac{\sqrt{14}}{5}$

C. $\pm\frac{\sqrt{12}}{13}$

D. $\pm\frac{\sqrt{5}}{14}$

Answer: B

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12. The product and sum of the roots of the equation $|x^2| - 5|x| - 24 = 0$ are respectively

A. $-64, 0$

B. $-24, 0$

C. 5, -24

D. 0, 72

Answer: A

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13. The number of real roots of the equation $x^5 + 3x^3 + 4x + 30 = 0$ is

A. 1

B. 2

C. 3

D. 5

Answer: A

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14. Form the equation whose roots are m times the roots of the equation $x^3 + \frac{x^2}{4} - \frac{x}{16} + \frac{1}{72} = 0$ and deduce the case when m =12 .

A. 3

B. 12

C. 9

D. 4

Answer: B

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15. Find the sum of all 4 digited numbers that can be formed using the digits 1,2,4,5,6 without repetition.

A. 533820

B. 532280

C. 533280

D. 532380

Answer: C

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16. If a set A has 5 elements , then the number of ways of selecting two subsets P and Q from A such that P and Q are mutually disjoint is

A. 64

B. 128

C. 243

D. 729

Answer: C

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17. The coefficient of x^4 in the expression of $(1 - x + x^2 - x^3)^4$ is

A. 31

B. 30

C. 25

D. -14

Answer: A

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18. If the middle term in the expansion of $(1+x)^{2n}$ is the greatest term, then x lies in the interval

A. $\left(\frac{n}{n+1}, \frac{n+1}{n}\right)$

B. $\left(\frac{n+1}{n}, \frac{n}{n+1}\right)$

C. $(n-2, n)$

D. $(n-1, n)$

Answer: A

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19. Find the coefficient of x^4 in the expansion of $\frac{3x}{(x-2)(x+1)}$ in powers of x specifying the interval in which the expansion is valid.

A. $-2 < x < \infty$

B. $-\frac{1}{2} < x < \frac{1}{2}$

C. $-1 < x < 1$

D. $-\infty < x < \infty$

Answer: C

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20. If $(1 + \tan\alpha)(1 + \tan 4\alpha) = 2, \alpha \in \left(0, \frac{\pi}{16}\right)$, then $\alpha =$

A. $\frac{\pi}{20}$

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

C. $\frac{\pi}{40}$

D. $\frac{\pi}{60}$

Answer: A

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21. If $\cos\theta = \dfrac{\cos\alpha - \cos\beta}{1 - \cos\alpha\cos\beta}$, then one of the values of $\tan\left(\dfrac{\theta}{2}\right)$ is

A. $\cos.\dfrac{\beta}{2}\tan.\dfrac{\alpha}{2}$

B. $\tan\alpha\tan.\dfrac{\beta}{2}$

C. $\tan.\dfrac{\beta}{2}\cot.\dfrac{\alpha}{2}$

D. $\tan^2.\dfrac{\alpha}{2}\tan^2.\dfrac{\beta}{2}$

Answer: A

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22. The value of the expression $\dfrac{1+\sin 2\alpha}{\cos(2\alpha - 2\pi)\tan\left(\alpha - \frac{3\pi}{4}\right)} - \dfrac{1}{4}\sin 2\alpha\left(\cot\dfrac{\alpha}{2} + \cot\left(\dfrac{3\pi}{2} + \dfrac{\alpha}{2}\right)\right)$ is

A. 0

B. 1

C. $\sin^2 . \frac{\alpha}{2}$

D. $\sin^2 \alpha$

Answer: D

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23. If $\frac{1}{6}\sin\theta, \cos\theta$ and $\tan\theta$ are in geometric progression, then the solution set of θ is

A. $2n\pi \pm \left(\frac{\pi}{6}\right)$

B. $2n\pi \pm \left(\frac{\pi}{3}\right)$

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

D. $n\pi + \left(\frac{\pi}{3}\right)$

Answer: B

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24. If $x=\sin\left(2\tan^{-1}2\right)$ and $y=\sin\left(\frac{1}{2}\tan^{-1}.\frac{4}{3}\right)$, then

A. $x>y$

B. $y^2=1-x$

C. $x=0=y$

D. $x<y$

Answer: B

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25. If $\cosh(x)=\frac{5}{4}$, then Cosh (3x) =

A. $\frac{61}{16}$

B. $\frac{63}{16}$

C. $\frac{65}{16}$

D. $\frac{61}{63}$

Answer: C

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26. In ΔABC, if $x = \tan\left(\frac{B-C}{2}\right)\tan.\ \frac{A}{2}, y = \tan\left(\frac{C-A}{2}\right)\tan.\ \frac{B}{2}$ and $z = \tan\left(\frac{A-}{2}\right.$

then $(x+y+z) = .$

A. xyz

B. $-xyz$

C. $2xyz$

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

Answer: C

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27. In ΔABC, if the sides a, b, c are in geometric progression and the largest angle exceeds the smallest angle by 60°, then $\cos B =$

A. $\dfrac{\sqrt{13}+1}{4}$

B. $\dfrac{1-\sqrt{13}}{4}$

C. 1

D. $\dfrac{\sqrt{13}-1}{4}$

Answer: D

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28. In a ΔABC if $\angle A = 90^\circ$, the $\cos^{-1}\left(\dfrac{R}{r_2 + r_3}\right)$ is equal to

A. 90°

B. 30°

C. 60°

D. 45°

Answer: C

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29. The cartesian equation of the plane whose vector equation is $r = (1 + \lambda - \mu)i + (2 - \lambda)j + (3 - 2\lambda + 2\mu)k$, where λ, μ are scalars, is

A. $2x + y = 5$

B. $2x - y = 5$

C. $2x - z = 5$

D. $2x + z = 5$

Answer: D

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30. For three vectors p, q and r, if r = 3p + 4q and 2r = p - 3q, then

A. $|r| < 2|q|$ and r, q have same direction

B. $|r| > 2|q|$ and r, q have opposite direction

C. $|r| < 2|q|$ and r, q have opposite directions

D. $|r| > 2|q|$ and r, q have same directions

Answer: B

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31. If $a = 2i + 3j - 5k, b = mi + nj + 12k$ and $a \times b = 0$ then (m, n) =

A. $\left(\frac{-24}{5}, \frac{-36}{5}\right)$

B. $\left(\frac{-24}{5}, \frac{36}{5}\right)$

C. $\left(\frac{24}{5}, \frac{-36}{5}\right)$

D. $\left(\frac{24}{5}, \frac{36}{5}\right)$

Answer: A

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32. If $|a| = 3, |b| = 4$ and the angle between a and b is 120°, then $|4a + 3b|$ is equal to

A. 25

B. 7

C. 13

D. 12

Answer: D

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33. Let a.b and c be non-zero vectors such that $(a \times b) \times c = \frac{1}{3}|b||c|a$. If θ is the acute angle between the vectors b and c then sin θ =

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

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

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

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

Answer: A

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34. If $a(\overline{\alpha} \times \bar{\beta}) + b(\bar{\beta} \times \bar{\gamma}) + c(\bar{\gamma} \times \overline{\alpha}) = 0$ and atleast one of the scalars a, b, c is non-zero, then the vectors $\overline{\alpha}, \bar{\beta}, \bar{\gamma}$ are

A. parallel

B. non coplanar

C. coplanar

D. mutually perpendicular

Answer: C

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35. If the mean of 10 observations is 50 and the sum of the squares of the deviations of the observations from the mean is 250, then the coefficient of variation of those observations is

A. 25

B. 50

C. 10

D. 5

Answer: C

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36. The variance of the first 50 even natural numbers is

A. $\frac{833}{4}$

B. 833

C. 437

D. $\frac{437}{4}$

Answer: B

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37. 3 out of 6 vertices of a regular hexagon are chosen at a time at random. The probability that the triangle formed with these vertices is an equilateral triangle , is

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

B. $\frac{1}{5}$

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

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

Answer: C

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38. A speaks the truth in 75% of the cases , B in 80% cases. What is the probability that their statements about an incident do not match ?

A. $\frac{7}{20}$

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

C. $\frac{2}{7}$

D. $\frac{5}{7}$

Answer: A

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39. The mean and the variance of a binomial distribution are 4 and 2 respectively. Then the probability of 2 successes is

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

B. $\frac{219}{256}$

C. $\frac{37}{256}$

D. $\frac{7}{64}$

Answer: D

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40. In a city 10 accident take place in a span of 50 days. Assuming that the number of accidents follow the Poisson distribution, the probability that three or more accident occure in a day , is

A. $\Sigma_{k=3}^{\infty}\frac{e^{-\lambda}\lambda^{k}}{k!}, \lambda = 0.2$

B. $\frac{\Sigma_{k=3}}{\infty}\frac{e^{\lambda}\lambda^{k}}{k}, \lambda = 0.2$

C. $1 - \Sigma_{k=0}^{3}\frac{e^{\lambda}\lambda^{k}}{k!}, \lambda = 0.2$

D. $\Sigma_{k=0}^{3}\frac{e^{-\lambda}\lambda^{k}}{k!}, \lambda = 0.2$

Answer: A

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41. Locus of centroid of the triangle whose vertices are $(a\cos t, a\sin t), (b\sin t - b\cos t)$ and $(1, 0)$ where t is a parameter, is

A. $(1-3x)^2 + 9y^2 = a^2 + b^2$

B. $(3x-1)^2 + 9y^2 = 2a^2 + 2b^2$

C. $(3x+1)^2 + (3y)^2 = a^2 + b^2$

D. $(3x+1)^2 + (3y)^2 = 3a^2 + 3b^2$

Answer: A

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42. If the corrdinate axes are rotated through an angle $\frac{\pi}{6}$ about the origin, then the transformed equation of $\sqrt{3}x^2 - 4xy + \sqrt{3}y^2 = 0$ is

A. $\sqrt{3}y^2 + xy = 0$

B. $x^2 - y^2 = 0$

C. $\sqrt{3}y^2 - xy = 0$

D. $\sqrt{3}y^2 - 2xy = 0$

Answer: C

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43. If the lines $x + 3y - 9 = 0, 4x + by - 2 = 0$ and $2x - y - 4 = 0$ are concurrent, then the equation of the line passing through the point (b, 0) and concurrent with the given lines, is

A. $2x + y + 10 = 0$

B. $4x - 7y + 20 = 0$

C. $x - y + 5 = 0$

D. $x - 4y + 5 = 0$

Answer: D

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44. The midpoint of the line segment joining the centroid and the othocentre of the triangle whose vertices are (a, b), (a, c) and (d, c) is

A. $\left(\frac{5a+d}{6}, \frac{b+5c}{6}\right)$

B. $\left(\frac{a+5d}{6}, \frac{5b+c}{6}\right)$

C. (a, c)

D. (0, 0)

Answer: A

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45. The distance from the origin to the image of (1, 1) with respect to the line $x+y+5=0$ is

A. $7\sqrt{2}$

B. $3\sqrt{2}$

C. $6\sqrt{2}$

D. $4\sqrt{2}$

Answer: C

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46. The equation of the pair of lines joining the origin to the points of intersection of $x^2 + y^2 = 9$ and $x + y = 3$, is

A. $x^2 + (3 - y)^2 = 9$

B. $(3 + y)^2 + y^2 = 9$

C. $x^2 - y^2 = 9$

D. $xy = 0$

Answer: D

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47. the orthocentre of the triangle formed by the lines x+y = 1 and $2y^2 - xy - 6x^2 = 0$ is

A. $\left(\frac{4}{3}, \frac{4}{3}\right)$

B. $\left(\frac{2}{3}, \frac{2}{3}\right)$

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

D. $\left(\frac{4}{3}, \frac{-4}{3}\right)$

Answer: A

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48. Let L be the line joing the origin to the point of interesection of the lines represecnted by $2x^2 - 3xy - 2y^2 + 10x + 5y = 0.$ If L is perpendicular to the line kx+y+3=0, then k=

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

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

C. -1

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

Answer: B

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49. A circle S=0 with radius $\sqrt{2}$ touches the line x+y-2=0 at (1,1). Then the length of the tangent drawn from the point (1,2) to S=0 is

A. 1

B. $\sqrt{2}$

C. $\sqrt{3}$

D. 2

Answer: C

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50. The normal drawn at P(-1, 2) on the circle $x^2 + y^2 - 2x - 2y - 3 = 0$ meets the circle at another point Q. Then the coordinates of Q are

A. (3, 0)

B. (-3, 0)

C. (2, 0)

D. (-2, 0)

Answer: A

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51. If the lines $kx + 2y - 4 = 0$ and $5x - 2y - 4 = 9$ are conjugate with respect to the circle $x^2 + y^2 - 2x - 2y + 1 = 0$, then k =

A. 0

B. 1

C. 2

D. 3

Answer: B

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52. The angle between the tangents drawn from the origin to the circle $x^2 + y^2 + 4x - 6y + 4 = 0$ is

A. $\tan^{-1}\left(\frac{5}{13}\right)$

B. $\tan^{-1}\left(\frac{5}{12}\right)$

C. $\tan^{-1}\left(\frac{12}{5}\right)$

D. $\tan^{-1}\left(\frac{13}{5}\right)$

Answer: C

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53. If the angle between the circlex $x^2+y^2-2x-4y+c=0$ and $x^2+y^2-4x-2y+4=0$ is 60°, then c is equal to

A. $\dfrac{3+\sqrt{5}}{2}$

B. $\dfrac{6\pm\sqrt{5}}{2}$

C. $\dfrac{9\pm\sqrt{5}}{2}$

D. $\dfrac{7\pm\sqrt{5}}{2}$

Answer: D

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54. A circle S cuts three circles $x^2+y^2-4x-2y+4=0$, $x^2+y^2-2x-4y+1=0$ and x^2+y^2+4

orthogonally . Then the radius of S is

A. $\dfrac{\sqrt{29}}{8}$

B. $\dfrac{\sqrt{28}}{11}$

C. $\frac{\sqrt{29}}{7}$

D. $\frac{\sqrt{29}}{5}$

Answer: A

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55. The distance between the vertex and the focus of the parabola $x^2 - 2x + 3y - 2 = 0$ is

A. $\frac{4}{5}$

B. $\frac{3}{4}$

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

D. $\frac{5}{6}$

Answer: B

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56. If (x_1, y_1) and (x_2, y_2) are the end points of a focal chord of the parabola $y^2 = 5x$, then $4x_1x_2 + y_1y_2 =$

A. 25

B. 5

C. 0

D. $5/4$

Answer: C

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57. The distance between the focii of the ellipse $x = 3\cos\theta, y = 4\sin\theta$ is

A. $2\sqrt{7}$

B. $7\sqrt{2}$

C. $\sqrt{7}$

D. $3\sqrt{7}$

Answer: A

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58. The equations of the latus recta of the ellipse $9x^2 + 25y^2 - 36x + 50y - 164 = 0$ are

A. $x - 4 = 0, x + 2 = 0$

B. $x - 6 = 0, x + 2 = 0$

C. $x + 6 = 0, x - 2 = 0$

D. $x + 4 = 0, x + 5 = 0$

Answer: B

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59. The values of m for which the line y =mx +2 become a tangent to the hyperbola $4x^2 - 9y^2 = 36$ is

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

B. $\pm\frac{2\sqrt{2}}{3}$

C. $\pm\frac{8}{8}$

D. $\pm\frac{4\sqrt{2}}{3}$

Answer: B

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60. The harmonic conjugate of (2,3,4) w.r.t the points $(3, -2, 2), (6, -17, -4)$ is

A. $\left(\frac{1}{2}, \frac{1}{3}, \frac{1}{4}\right)$

B. $\left(\frac{18}{5}, -5, \frac{4}{5}\right)$

C. $\left(\frac{-18}{5}, \frac{5}{4}, \frac{4}{5}\right)$

D. $\left(\frac{18}{5}, -5, \frac{-4}{5}\right)$

Answer: B

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61. If a line makes angles $\alpha, \beta, \lambda, \delta$ with the 4 diagonals of a cube then $\sin^2\alpha + \sin^2\beta + \sin^2\lambda + \sin^2\delta$

A. $\frac{4}{3}$

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

C. $\frac{7}{3}$

D. $\frac{5}{3}$

Answer: B

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62. If the plane $56x + 4y + 9z = 2016$ meets the coordinates axes in A, B , C then the centroid of the triangle ABC is

A. (12, 168, 224)

B. (12, 168, 112)

C. $\left(12, 168, \frac{224}{3}\right)$

D. $\left(12, -168, \frac{224}{3}\right)$

Answer: C

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63. The value (s) of x for which the function

$f(x) = \begin{cases} 1-x & , \quad x < 1 \\ (1-x)(2-x) & : \quad 1 \le x \le 2 \\ x-3 & , \quad x > 2 \end{cases}$ fails to be continuous is (are)

A. 1

B. 2

C. 3

D. All real numbers

Answer: B

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64. $Lt_{x \to 0} \dfrac{6^x - 3^x - 2^x + 1}{x^2} =$

A. $(\log_e 2)\log_e 3$

B. $\log_e 5$

C. $\log_e 6$

D. 0

Answer: A

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65. Define $f(x) = \begin{cases} x^2 + bx + c & , \quad x < 1 \\ x & , \quad x \geq 1 \end{cases}$. If f(x) is differentiable at x = 1, then (b - c) =

A. -2

B. 0

C. 1

D. 2

Answer: A

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66. If x = a is a root of multiplicity two of a polynomial equation f(x) = 0, then

A. $f'(a) = f''(a) = 0$

B. $f''(a) = f(a) = 0$

C. $f'(a) \neq 0 \neq f''(a)$

D. $f(a) = f'(a) = 0, f''(a) \neq 0$

Answer: D

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67. If $y = \log_2(\log_2 x), \quad \text{then} \quad \frac{dy}{dx} =$

A. $\frac{\log_e 2}{x \log_e x}$

B. $\frac{1}{\log_e (2x)^x}$

C. $\frac{1}{(x \log_e x)\log_e 2}$

D. $\frac{1}{x(\log_2 x)^2}$

Answer: C

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68. The angle of intersection between the curves $y^2 + x^2 = a^2\sqrt{2}$ and $x^2 - y^2 = a^2$, is

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

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

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

D. $\frac{\pi}{12}$

Answer: B

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69. If $A > 0, B > 0$ and $A + B = \frac{\pi}{3}$, then the maximum value of $\tan A \tan B$ is

A. $\frac{1}{\sqrt{3}}$

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

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

D. $\sqrt{3}$

Answer: B

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70. The equation of the common tangent drawn to the curves $y^2 = 8x$ and $xy = -1$ is

A. $y = 2x + 1$

B. $2y = x + 6$

C. `y = 4x-4

D. $3y = 8x + 2$

Answer: C

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71. Suppose $f(x) = x(x+3)(x-2), x \in [-1, 4]$. Then a value of c in (-1, 4) satisfying $f'(c) = 10$ is

A. 2

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

C. 3

D. $\frac{7}{2}$

Answer: A

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72. If $\int x^3 e^{5x} dx - \frac{e^{5x}}{5^4}(f(x)) + 0_3$ then $f(x) =$

A. $\frac{x^3}{5} - \frac{3x^2}{5^2} + \frac{6x}{5^3} - \frac{6}{5^4}$

B. $5x^3 = 5^2x^2 + 5^3x - 6$

C. $5^2x^3 - 15x^2 + 30x - 6$

D. $5^3x^3 - 75x^2 + 30x - 6$

Answer: D

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73. $\int \frac{x}{(x^2 + 2x + 2)^2} dx =$

A. $\frac{x^2 + 2}{x^2 + 2x + 2} - \frac{1}{2}\tan^{-1}(x + 1) + c$

B. $\frac{x^2 + 2}{2(x^2 + 2x + 2)} - \frac{1}{2}\tan^{-1}(x - 1) + c$

C. $\dfrac{x^2-2}{4(x^2+2x+2)}-\dfrac{1}{2}\tan^{-1}(x-1)+c$

D. $\dfrac{2(x-1)}{(x^2+2x+2)}+\dfrac{1}{2}\tan^{-1}(x+1)+c$

Answer: C

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74. If $\int \log\left(a^2+x^2\right)dx = h(x)+c$, then h(x)=

A. $x\log\left(a^2+x^2\right)+2\tan^{-1}\left(\dfrac{x}{a}\right)$

B. $x^2\log\left(a^2+x^2\right)+x+a\tan^{-1}\left(\dfrac{x}{a}\right)$

C. $a\log\left(a^2+x^2\right)-2x+2a\tan^{-1}\left(\dfrac{x}{a}\right)$

D. $x^2\log\left(a^2+x^2\right)+2x-a^2\tan^{-1}\left(\dfrac{x}{a}\right)$

Answer: C

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75. For $x > 0$, if $\int (\log x)^5 dx = x\left(A(\log x)^5 + B(\log x)^4 + C(\log x)^3 + D(\log x)^2 + E(\log$

constant then $A + B + C + D + E + F$=

A. -44

B. -42

C. -40

D. -36

Answer: A

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76. The area included between the parabola $y = \frac{x^2}{4a}$ and the curve $y = \frac{8a^3}{(x^2 + 4a^2)}$ is

A. $a^2\left(2\pi + \frac{2}{3}\right)$

B. $a^2\left(2\pi - \frac{8}{3}\right)$

C. $a^2\left(\pi+\frac{4}{3}\right)$

D. $a^2\left(2\pi-\frac{4}{3}\right)$

Answer: D

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77. By the definition of the definite integral, the value of

$$\lim_{n\to\infty}\left(\frac{1}{\sqrt{n^2-1}}+\frac{1}{\sqrt{n^2-2^2}}+\ldots.+\frac{1}{\sqrt{n^2-(n-1)^2}}\right)$$ is equal

to

A. π

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

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

D. $\frac{\pi}{6}$

Answer: B

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78. $\int_{-\pi/4}^{\pi/4}\left(\frac{x+\pi/4}{2-\cos 2x}\right)dx =$

A. $\frac{8\pi\sqrt{3}}{5}$

B. $\frac{2\pi\sqrt{3}}{9}$

C. $\frac{4\pi^2\sqrt{3}}{9}$

D. $\frac{\pi^2}{6\sqrt{3}}$

Answer: D

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79. The solution of the differential equation $(1+y^2)+\left(x-e^{\tan^{-1}y}\right)\frac{dy}{dx}=0$ is

A. $xe^{\tan^{-1}}y=\tan^{-1}y+c$

B. $xe^{2\tan^{-1}y}=e^{\tan^{-1}y}+c$

C. $2xe^{\tan^{-1}y} = e^{2\tan^{-1}y} + c$

D. $x^2e^{\tan^{-1}y} = 4e^{2\tan^{-1}y} + c$

Answer: C

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80. The solution of the different equation $(2x - 4y + 3)\frac{dy}{dx} + (x - 2y + 1) = 0$ is

A. $\log[(2x - 4y) + 3] = x - 2y + c$

B. $\log[2(2x - y) + 3] = 2(x - 2y) + c$

C. $\log[2(x - 2y) + 5] = 2(x + y) + c$

D. $\log[4(x - 2y) + 5] = 4(x + 2y) + c$

Answer: D

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