MATHS

BOOKS - MTG MATHS (BENGALI ENGLISH)

QUESTION PAPER 2015

Multiple Choice Questions

1. In a certain town, 60% of the families own a car, 30% own a house and 20% own both a car and a house. If a family is randomly chosen, what is the probability that this family owns a car or a house but not both?

A. 0.5

B. 0.7

C. 0.1

D. 0.9

Answer:

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2. The letters of the word COCHIN are permuted and all the permutations are arranged in alphabetical order as in English dictionary. The number of words that appear before the word COCHIN IS

A. 360

B. 192

C. 96

D. 48

Answer:

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3. Let $f: R \to R$ be a continuous function which satisfies $f(x) = \int_0^x f(t)dt$. Then the value of $f(\log_e 5)$ is

A. 0 (zero)

B. 2

C. 5

D. 3

Answer:

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4. The value of $\lim_{x \to 2} \int_2^x \frac{3t^2}{x-2} dt$ is

A. 10

B. 12

C. 8

D. 16

Answer:

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5. If $\cot\frac{2x}{3}+\tan\frac{x}{3}=\cos ec\frac{kx}{3}$, then the value of k is

A. 1

B. 2

C. 3

D. -1

Answer:

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6. If $\theta \in \left(\frac{\pi}{2}, \frac{3\pi}{2}\right)$, then the value of $\sqrt{4\cos^4\theta + \sin^2 2\theta} + 4\cot\theta\cos^2\left(\frac{\pi}{4} + \frac{\theta}{2}\right)$ is

A. $-2\cot\theta$

B. $2\cot\theta$

C. $2\cos\theta$

D. $2\sin\theta$

Answer:

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7. The number of real solutions of the equation $(\sin x - x)(\cos x - x^2) = 0$ is

A. 1

B. 2

C. 3

D. 4

Answer:

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8. The value of λ, such that the following system of equations has no solution, is

$2x - y - 2z = 2$

$x - 2y + z = -4$

$x + y + \lambda z = 4$

A. 3

B. 1

C. 0 (zero)

D. -3

Answer:

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9. If $f(x) = \begin{vmatrix} 1 & x & x+1 \\ 2x & x(x-1) & (x+1)x \\ 3x(x-1) & x(x-1)(x-2) & (x+1)x(x-1) \end{vmatrix}$ The f(100) is equal to

A. 0 (zero)

B. 1

C. 100

D. 10

Answer:

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10. Which of the following is not always true?

A. $\left|\vec{a}+\vec{b}\right|^2=\left|\vec{a}\right|^2+\left|\vec{b}\right|^2$ is $\vec{a}$ and $\vec{b}$ are perpendicular to each other

B. $\left|\vec{a}+\lambda\vec{b}\right|\geq\left|\vec{a}\right|$ for all $\lambda\in R$ if $\vec{a}$ and $\vec{b}$ are perpendicular to each other

C. $\left|\vec{a}+\vec{b}\right|^2+\left|\vec{a}-\vec{b}\right|^2=2\left(\left|\vec{a}\right|^2+\left|\vec{b}\right|^2\right)$

D. $\left|\vec{a}+\lambda\vec{b}\right|\geq\left|\vec{a}\right|$ for all $\lambda\in R$ if $\vec{a}$ is parallel to $\vec{b}$

Answer:

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11. If the four points with position vectors $-2\hat{i}+\hat{j}+\hat{k},\hat{i}+\hat{j}+\hat{k},\hat{j}-\hat{k}$ and $\lambda\hat{j}+\hat{k}$ are coplanar, then λ=

A. 1

B. 2

C. -1

D. 0

Answer:

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12. If $\sin^{-1}\left(x - \frac{x^2}{2} + \frac{x^3}{4} - \frac{x^4}{8} + \ldots\ldots\right) = \frac{\pi}{6}$ where $|x| < 2$ then the value of x is

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

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

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

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

Answer:

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13. The area of the region bounded by the curve $y = x^3$, its tangent at (1,1) and x-axis is

A. $\frac{1}{12}$

B. $\frac{1}{6}$

C. $\frac{2}{17}$

D. $\frac{2}{15}$

Answer:

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14. If $\log_{0.2}(x-1) > \log_{0.04}(x+5)$ then

A. $-1 < x < 4$

B. $2 < x < 3$

C. $1 < x < 4$

D. $1 < x < 3$

Answer:

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15. The number of real roots of equation $\log_e x + ex = 0$

A. 0 (zero)

B. 1

C. 2

D. 3

Answer:

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16. For all real values of a_0, a_1, a_2, a_3 satisfying $a_0 + \frac{a_1}{2} + \frac{a_2}{3} + \frac{a_3}{4} = 0$ then equation $a_0 + a_1 x + a_2 x^2 + a_3 x^3 = 0$ has a real root in the interval

A. [0,1]

B. [-1,0]

C. [1,2]

D. [-2,-1]

Answer:

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17. Let $f: R \to R$ be defined as $f(x) = \begin{cases} 0, & \text{is irrational} \\ \sin|x|, & \text{x is rational} \end{cases}$ Then which of the following is true?

A. f is discontinuous for all x

B. f is continuous for all x

C. f is discontinuous at $x = k\pi$, where k is an integer,

D. f is continuous at $x = k\pi$, where k is an integer,

Answer:

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18. If the vertex of the conic $y^2 - 4y = 4x - 4a$ always lies between the straight lines x+y=3 and 2x+2y-1=0 then

A. $2 < a < 4$

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

C. $0 < a < 2$

D. $-\frac{1}{2} < a < \frac{3}{2}$

Answer:

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19. Number of intersecting points of the conic $4x^2 + 9y^2 = 1$ and $4x^2 + y^2 = 4$ is

A. 1

B. 2

C. 3

D. 0 (zero)

Answer:

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20. The value of λ for which the straight line $\frac{x-\lambda}{3} = \frac{y-1}{2+\lambda} = \frac{z-3}{-1}$ may lie on the plane x-2y=0 is

A. 2

B. 0

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

D. `there is no such ?

Answer:

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21. if $f:[0,\pi/) \to R$ is defined as $f(\theta) = \begin{vmatrix} \theta & \tan\theta & 1 \\ -\tan\theta & 1 & \tan\theta \\ -1 & -\tan\theta & 1 \end{vmatrix}$.

Then the range of f is

A. $(2, \infty)$

B. $(-\infty, 2]$

C. $[2, \infty)$

D. $(-\infty, 2]$

Answer:

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22. If A and B are two matrices such that AB=B and BA=A then $A^2 + B^2$ equals

A. 2AB

B. 2BA

C. A+B

D. AB

Answer:

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23. If ω is an imaginary cube root of unity, then the value of the determinant

$$\begin{vmatrix} 1+\omega & \omega^2 & -\omega \\ 1+\omega^2 & \omega & -\omega^2 \\ \omega+\omega^2 & \omega & -\omega^2 \end{vmatrix}$$ is

A. -2ω

B. $-3\omega^2$

C. -1

D. 0 (zero)

Answer:

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24. The value of $2\cot^{-1}\frac{1}{2} - \cot^{-1}\frac{4}{3}$ is

A. $-\frac{\pi}{8}$

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

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

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

Answer:

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25. If the point $(2\cos\theta, 2\sin\theta)$, for $\theta \in (0, 2\pi)$ lies in the region betweet the lines x+y=2 and x-y=2 containing the orgin, then θ lies in

A. $\left(0, \frac{\pi}{2}\right) \cup \left(\frac{3\pi}{2}, 2\pi\right)$

B. $[0, \pi]$

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

D. $\left[\frac{\pi}{4}, \frac{\pi}{2}\right]$

Answer:

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26. Number of points having distance $\sqrt{5}$ from the straight line $x - 2y + 1 = 0$ and a distance $\sqrt{13}$ from the line $2x + 3y - 1 = 0$ is

A. 1

B. 2

C. 4

D. 5

Answer:

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27. Let a,b, c, d be any four real number. Then $a^n + b^n = c^n + d^n$ holds for any natural number n is

A. $a + b = c + d$

B. a-b=c-d

C. a+b=c+d, $a^2 + b^2 = c^2 + d^2$

D. $a - b = c - d, a^2 - b^2 = c^2 - d^2$

Answer:

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28. If α, β are the roots of $x^2 - px + 1 = 0$ and γ is a root of $x^2 + px + 1 = 0$, then $(\alpha + \gamma)(\beta + \gamma)$ is

A. 0 (zero)

B. 1

C. -1

D. p

Answer:

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29. Number of irrational terms in the binomial expansion of $\left(3^{1/5} + 7^{1/3}\right)^{100}$ is

A. 90

B. 88

C. 93

D. 95

Answer:

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30. The quadratic expression $(2x+1)^2 - px + q \neq 0$ for any real x is

A. $p^2 - 16p - 8q < 0$

B. $p^2 - 8 + 16q < 0$

C. $p^2 - 8p - 16q < 0$

D. $p^2 - 16p + 8q < 0$

Answer:

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31. Let $f: R \to R$ be defined as $f(x) = \frac{x^2 - x + 4}{x^2 + x + 4}$. Then the range of the function f(x) is

A. $\left[\frac{3}{5}, \frac{5}{3}\right]$

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

C. $\left(-\infty, \frac{3}{5}\right) \cup \left(\frac{5}{3}, \infty\right)$

D. $\left[-\frac{5}{3}, -\frac{3}{5}\right]$

Answer:

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32. The least value of $2x^2 + y^2 + 2xy + 2x - 3y + 8$ for real numbers x and y is

A. 2

B. 8

C. 3

D. 1

Answer:

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33. Let $f:[-2,2] \to R$ be a continuous function such that f(x) assumes only irrational values. If $f(\sqrt{2}) = \sqrt{2}$, then

A. f(0)=0

B. $f(\sqrt{2}-1) = \sqrt{2}-1$

C. $f(\sqrt{2}-1) = \sqrt{2}+1$

D. $f(\sqrt{2}-1) = \sqrt{2}$

Answer:

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34. The minimum value of $\cos\theta + \sin\theta + \frac{2}{\sin 2\theta}$ for $\theta \in (0, \pi/2)$ is

A. $2 + \sqrt{2}$

B. 2

C. $1 + \sqrt{2}$

D. $2\sqrt{2}$

Answer:

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35. The value of $\left(\frac{1+\sqrt{3}i}{1-\sqrt{3}i}\right)^{64} + \left(\frac{1-\sqrt{3}i}{1+\sqrt{3}i}\right)^{64}$ is

A. 0 (zero)

B. -1

C. 1

D. i

Answer:

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36. Find the maximum value of $|z|$ when $\left|z - \frac{3}{z}\right| = 2$, z being a complex number.

A. $1 + \sqrt{3}$

B. 3

C. $1 + \sqrt{2}$

D. 1

Answer:

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37. Given that x is a real number satisfying $\frac{5x^2 - 26x + 5}{3x^2 - 10x + 3} < 0$ then

A. $x < \frac{1}{5}$

B. $\frac{1}{5} < x < 3$

C. $x > 5$

D. $\frac{1}{5} < x < \frac{1}{3}$ or $3 < x < 5$

Answer:

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38. Let

$$x_n = \left(1 - \frac{1}{3}\right)^2 \left(1 - \frac{1}{6}\right)^2 \left(1 - \frac{1}{10}\right)^2 \ldots\ldots\ldots\ldots \left(1 - \frac{1}{\frac{n(n+1)}{2}}\right)^2, n \geq 2$$

. Then the value of $\lim_{x \to \infty} x_n$ is

A. $1/3$

B. $1/9$

C. $1/81$

D. 0 (zero)

Answer:

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39. The variance of first 20 nutural numbers is

A. $133/4$

B. $279/12$

C. $133/2$

D. 399/4

Answer:

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40. A fair coin is tossed a fixed number of times. If the probability of getting exactly 3 heads equals the probability of getting exactly 5 heads, then the probability of getting exactly one head is

A. $1/64$

B. $1/32$

C. $1/16$

D. $1/8$

Answer:

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41. If the letters of the word PROBABILITY are written down at random in a row, the probability that two B-s are together is

A. $2/11$

B. $10/11$

C. $3/11$

D. $6/11$

Answer:

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42. The least value of t so that the lines $x = t + \alpha, y + 16 = 0$ and $y = ax$ are concurrent is

A. 2

B. 4

C. 16

D. 8

Answer:

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43. If in a triangle ΔABC, $a^2 \cos^2 A - b^2 - c^2 = 0$, then

A. $\frac{\pi}{4} < A < \frac{\pi}{2}$

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

C. $A = \frac{\pi}{2}$

D. $A < \frac{\pi}{4}$

Answer:

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44. $\{x \in R : |\cos x| \geq \sin x\} \cap \left[0, \frac{3\pi}{2}\right]$

A. $\left[0, \frac{\pi}{4}\right] \cup \left[\frac{3\pi}{4}, \frac{3\pi}{2}\right]$

B. $\left[0, \frac{\pi}{4}\right] \cup \left[\frac{\pi}{2}, \frac{3\pi}{2}\right]$

C. $\left[0, \frac{\pi}{4}\right] \cup \left[\frac{5\pi}{4}, \frac{3\pi}{2}\right]$

D. $\left[0, \frac{3\pi}{2}\right]$

Answer:

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45. The number of distinct real roots of

$$\begin{vmatrix} \sin x & \cos x & \cos x \\ \cos x & \sin x & \cos x \\ \cos x & \cos x & \sin x \end{vmatrix} = 0 \text{ in the interval } -\frac{\pi}{4} \leq x \leq \frac{\pi}{4} \text{ is}$$

A. 0 (zero)

B. 2

C. 1

D. 3

Answer:

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46. Let $x_1, x_2, \ldots\ldots\ldots x_{15}$ be 15 distinct numbers chosen from 1,2,3,.....,15.

Then the value of

A. always ≤ 0

B. 0 (zero)

C. always even

D. always odd

Answer:

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47. Let [x] denote the greatest integer less than or equal to x Then the value of a for which the function $f(x) = \begin{cases} \frac{\sin[-x^2]}{[-x^2]}, & x \neq 0 \\ \alpha, & x = 0 \end{cases}$ is continuous at x=0 is

A. $\alpha = 0$

B. $\alpha = \sin(-1)$

C. $\alpha = \sin(1)$

D. $\alpha = 1$

Answer:

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48. A particle starts moving from rest from a fixed point in a fixed direction. The distances from the fixed point at a time t is given by $s = t^2 + at - b + 17$, where a, b are real numbers. If the particle comes to rest after 5 sec at a distance of s = 25 units from the fixed point, then values of a and bare respectively

A. 10,-33

B. $-10, \ -33$

C. $-8, 33$

D. $-10, 33$

Answer:

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49. $\lim_{n \to \infty} \frac{\sqrt{1} + \sqrt{2} + ... + \sqrt{n-1}}{n\sqrt{n}} =$

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

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

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

D. 0 (zero)

Answer:

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50. If $\lim_{x \to 0} \frac{axe^x - b\log(1+x)}{x^2} = 3$ then the values of a, b are respectively

A. 2,2

B. 1,2

C. 2,1

D. 2,0

Answer:

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51. Area of the region bonuded by $y = |x|$ and $y = -|x| + 2$ is

A. 4 sq. units

B. 3 sq. units

C. 2 sq. units

D. 1 sq. units

Answer:

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52. Let d(n) denote the number of divisors of n inciuding 1 and iteslf . Then d(225), d(1125) and d(640) are

A. in AP

B. in HP

C. in GP

D. consecutive integers

Answer:

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53. The trigonometric equation $\sin^{-1} x = 2\sin^{-1} 2a$ has a real solution if

A. $|a| > \frac{1}{\sqrt{2}}$

B. $\frac{1}{2\sqrt{2}} < |a| < \frac{1}{\sqrt{2}}$

C. $|a| > \frac{1}{2\sqrt{2}}$

D. $|a| \leq \frac{1}{2\sqrt{2}}$

Answer:

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54. If $2+i$ and $\sqrt{5}-2i$ are the roots of the equation $\left(x^2+ax+b\right)\left(x^2+cx+d\right)=0$ where, a,b,c,d are real contstants, then product of all roots of the equation is

A. 40

B. $9\sqrt{5}$

C. 45

D. 35

Answer:

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55. Let P(x) be a polynomial, which when divided by x-3 and x-5 leaves remainders 10 and 6 respectively. If the polynomial is divided by (x-3)(x-5) then the remainder is

A. $-2x+16$

B. 16

C. 2x-16

D. 60

Answer:

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56. The integrating factor of the differential equation $\frac{dy}{dx} + \left(3x^2 \tan^{-1} y - x^2\right)\left(1 + y^2\right) = 0$ is

A. e^{x^2}

B. e^{x^3}

C. e^{3x^2}

D. e^{3x^3}

Answer:

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57. If $y = e^{-x}\cos 2x$ then which of the following differential equations is satisfied?

A. $\frac{d^2y}{dx^2} + 2\frac{dy}{dx} + 5y = 0$

B. $\frac{d^2y}{dx^2} + 5\frac{dy}{dx} + 2y = 0$

C. $\frac{d^2y}{dx^2} - 5\frac{dy}{dx} - 2y = 0$

D. $\frac{d^2y}{dx^2} + 2\frac{dy}{dx} - 5y = 0$

Answer:

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58. Let f(x) denote the fractional part of a real numbers x. Then the value of $\int_0^{\sqrt{3}} f(x^2)\,dx$ is

A. $2\sqrt{3} - \sqrt{2} - 1$

B. 0 (zero)

C. $\sqrt{2}-\sqrt{3}+1$

D. $\sqrt{3}-\sqrt{2}+1$

Answer:

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59. Let $S=\{(a,b,c)\in N\times N\times N: a+b+c=21, a\leq b\leq c\}$ and $T=\{(a,b,c)\in N\times N\times N: a,b,c$ are in A.P. $\}$, where N is the set of all natural numbers. Then the number of elements in the set $S\cap T$ is

A. 6

B. 7

C. 13

D. 14

Answer:

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60. Let $y = e^{x^2}$ and $y = e^{x^2} \sin x$ be two given curves. Then the angle between the tangents to the curves at any point of their intersection is

A. 0 (zero)

B. π

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

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

Answer:

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61. A person goes to office by car or scooter or bus or train, probability of which are 1/7, 3/7, 2/7 and 1/7 respectively. Probability that he reaches office late, if he takes car, scooter bus or train is 2/9, 1/9, 4/9 and 1/9 respectively. Given that he reached office in time, the probability that he travelled by a car is

A. $1/7$

B. $2/7$

C. $3/7$

D. $4/7$

Answer:

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62. The value of $\int \frac{(x-2)dx}{\left\{(x-2)^2(x+3)^7\right\}^{1/3}}$ is

A. $\frac{3}{20}\left(\frac{x-2}{x+3}\right)^{4/3}+c$

B. $\frac{3}{20}\left(\frac{x-2}{x+3}\right)^{3/4}+c$

C. $\frac{5}{20}\left(\frac{x-2}{x+3}\right)^{4/3}+c$

D. $\frac{3}{20}\left(\frac{x-2}{x+3}\right)^{5/3}+c$

Answer:

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63. In a triangle ABC, $\angle C = 90^\circ$, r and R are the in-radius and circum-radius of the triangle ABC respectively, then 2(r+R) is eqaul to

A. b+c

B. c+a

C. a+b

D. a+b+c

Answer:

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64. Let α, β be two distinct roots of $a\cos\theta + b\sin\theta = c$, where a, b and c are three real constants and $\theta \in [0, 2\pi]$. Then $\alpha + \beta$ is also a root of the same equation if

A. a+b=c

B. b+c=a

C. c+a=b

D. c=a

Answer:

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65. For a matrix $A\begin{pmatrix}1&0&0\\2&1&0\\3&2&1\end{pmatrix}$ if U_1, U_2 and U_3 are 3×1 column matrices satisfysing $AU_1=\begin{pmatrix}1\\0\\0\end{pmatrix}, AU_2=\begin{pmatrix}2\\3\\0\end{pmatrix}, AU_3=\begin{pmatrix}2\\3\\1\end{pmatrix}$ and U is 3×3 matrix whose columns are U_1, U_2 and U_3. Then sum of the elements of U^{-1} is

A. 6

B. 0 (zero)

C. 1

D. 2//3

Answer:

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66. Let $f: R \to R$ be differentiable at x=0. if f(0)=0 and f'(0)=2 , then the value of $\lim_{x \to x} \frac{1}{x}[f(x) + f(2x) + f(3x) + ... + f(2015x)]$ is

A. 2015

B. 0 (zero)

C. 2015×2016

D. 2015×2014

Answer:

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67. If x and y are digits such that $17! = 3556xy428096000$, then x+y equals

A. 15

B. 6

C. 12

D. 13

Answer:

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68. Let $f: N \to R$ be such that f(1)=1 and $f(1) + 2f(2) + 3f(3) + \ldots\ldots\ldots + nf(n) = n(n+1)f(n)$, for all $n \in N, n \geq 2$ where N is the set of natural numbers and R is the set of real numbers. Then the value of f(500) is

A. 1000

B. 500

C. $1/500$

D. $1/1000$

Answer:

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69. If 5 distinct balls placed at random into 5 cells, then the probability that exactly one cell remains empty is

A. $48/125$

B. $12/125$

C. $8/125$

D. $1/125$

Answer:

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70. A survey of people in a given region showed that 20% were smokers. The probability of death due to lung cancer, given that a person smoked, was 10 times the probability of death due to lung cancer, given that a person did not smoke. If the probability of death due to lung cancer in the region is 0.006, what is the probability of death due to lung cancer given that a person is a smoker?

A. $1/140$

B. $1/70$

C. $3/140$

D. $1/10$

Answer:

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71. If cos x and sin x are solutions of the differential equation $a_0\frac{d^2y}{dx^2}+a_1\frac{dy}{dx}+a_2y=0$, where a_0, a_1, a_2 are real constants then which of the following is/are always true?

A. A cos x + B sin x is a solution, where A and B are real constants.

B. $A\cos\left(x+\frac{\pi}{4}\right)$ is a solution, where A is real constant.

C. A cos x sin x is a solution, where A is real constant.

D. $A\cos\left(x+\frac{\pi}{4}\right)+B\sin\left(\pi-\frac{\pi}{4}\right)$ is a solution, where A and B are real constants.

Answer:

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72. Which of the following statements is /are correct for $0<\theta<\frac{\pi}{2}$ >

A. $(\cos\theta)^{1/2}\leq\cos\frac{\theta}{2}$

B. $(\cos\theta)^{3/4}\geq\cos\frac{3\theta}{4}$

C. $\cos\frac{5\theta}{6} \geq (\cos\theta)^{5/6}$

D. $\cos\frac{7\theta}{8} \leq (\cos\theta)^{7/8}$

Answer:

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73. Which of the following is /are always false?

A. A quadratic equation with rational coefficients has zero or two irrational roots

B. A quadratic equation with real coefficients has zero or two non-real roots

C. A quadratic equation with irrational coefficients has zero or two rational roots

D. A quadratic equation with integer coefficients has zero or two irrational roots

Answer:

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74. If the straight (a-1)x-by+4=0 is normal to the hyperbola xy=1 then which of the following does not hold ?

A. $a > 1, b > 0$

B. $a > 1, b < 0$

C. $a < 1, b < 0$

D. $a < 1, b > 0$

Answer:

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75. Let f be any-continuously differentiable function on [a,b] and twice differentiable on (a,b) such that f(a)=f'(a)=0 and f(b)=0. Then

A. f'(a)=0

B. f'(x)=0 for some $x \in (a, b)$

C. f' (x)=0 for some $x \in (a, b)$

D. f(x)=0 for some $x \in (a, b)$

Answer:

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76. A relation ρ on the set of real number R is defined as follows : $x \rho y$ if and only if $xy > 0$. Then which of the following is/are true?

A. ρ is reflexive and symmetric

B. ρ is symmetric but not reflexive

C. ρ is symmetric and transitive

D. ρ is an equivalene relation

Answer:

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77. Suppose a machine produces metal parts that contain some defective parts probability 0.05. How many parts should be produced in order that the probability of at least one part being defective is 1/2 or more? (Given $\log_{10} 95 = 1.977$ and $\log_{10} 2 = 0.3$)

A. 11

B. 12

C. 15

D. 14

Answer:

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78. Let $f: R \to R$ be such that $f(2x - 1) = f(x)$ for all $x \in R$. If f is continuous at x=1 and f(1)=1, then

A. f(2)=1

B. f(2)=2

C. f is continuouns only at x=1

D. f is continuous at all points

Answer:

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79. Let $16x^2 - 3y^2 - 32x - 12y = 44$ represent a hyperbola. Then

A. length of transverse axis is $2\sqrt{3}$

B. length of each latus rectum is $32/\sqrt{3}$

C. eccentricity is $\sqrt{19/3}$

D. equation of directrix is $x = \frac{\sqrt{19}}{3}$

Answer:

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80. For the function $f(x) = \left[\frac{1}{[x]}\right]$ where [x] denotes the greatest less than or equal to x, which of the following statements are true ?

A. The domain is $(-\infty, \infty)$

B. The range is $\{0\} \cup \{-1\} \cup \{1\}$

C. The domain is $(-\infty, 0) \cup [1, \infty)$

D. The range is $\{0\} \cup \{1\}$

Answer:

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