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MATHS

BOOKS - TELUGU ACADEMY MATHS (TELUGU ENGLISH)

IPE:MARCH-2016(AP)

Ipe March 2016 Ap Maths 1 B

1. Transformation the equation $4x - 3y + 12 = 0$ into (i) slope intercept form

(ii) intercept form

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2. Find the perpendicular distance from the point (3,4) to the straight line: $3x - 4y + 10 = 0$.

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3. Find the coordinates of the vertex 'C' of ΔABC if its centroid is the origin and the

vertices A,B are (1,1,1) are (-2,4,1) respectively.

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4. Reduce the equation $x + 2y - 3z - 6 = 0$ of the plane to the normal form.

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5. Compute the limit of $Lt_{x \to 3} \frac{x^2 - 8x + 15}{x^2 - 9}$

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6. Evaluate $Lt_{x \to \infty} \frac{x^2 - \sin x}{x^2 - 2}$

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7. If f(x)=$2x^2 + 3x + 5$, then prove that $f'(0) + 3f'(-1) = 0$

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8. Find $\frac{dy}{dx}$ if $x = a\cos^3 t, y = a\sin^3 t.$

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9. Find (Δy) and dy if $y = 5x^2 + 6x + 6, x = 2$ and $\Delta x = 0.001$

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10. Verify the conditions of Lagrange's mean value theorem for the function $x^2 - 1$ on [2,3]

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11. If the distance from 'P' to the points (2,3) and (2,-3) are in the ratio 2:3, then find the equation of the locus of P.

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12. When the origin is shifted to (-1,2) by the translation of axes, find the transformed equation of $2x^2 + y^2 - 4x + 4y = 0$

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13. Find the points on the line $3x - 4y - 1 = 0$ which are at a distance of 5 units from the point (3,2).

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14. Find $\lim_{x \to a} \left(\frac{x \sin a - a \sin x}{x - a} \right)$

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15. Find the derivative of $\sec 3x$ using first principle.

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16. Find the lengths of subtangent and subnormal at a point on the curve $y = b\sin\left(\frac{x}{a}\right)$

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17. The volume of a cube is increasing at a rate of 9 cubie centimeters per second. How fast is the surface area increasing when the length of edge is 10 cms?

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18. Find the orthocentre of the triangle whose vertices are $(-5, -7), (13, 2), (-5, 6)$

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19. If $ax^2 + 2hxy + by^2 + 2gx + 2fy + c = 0$ represents a pair of lines then prove that

$$\triangle = abc + 2fgh - af^2 - bg^2 - ch^2 = 0.$$

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20. Find the angle between the lines joining the origin to the points of intersection of the curve $x^2 + 2xy + y^2 + 2x + 2y - 5 = 0$ and the line 3x-y+1=0.

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21. Show that the lines whose direction cosines are given by $l + m + n = 0$, $2mn + 3nl - 5lm = 0$ are perpendicular to each other .

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22. If $y = \tan(-1)\left(\frac{\sqrt{(1+x^2)} + \sqrt{1-x^2}}{\sqrt{1+x^2} - \sqrt{1-x^2}}\right)$ then find $\frac{dy}{dx}$.

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23. Find the angle between the curve $y^2 = 4x$ and $x^2 + y^2 = 5$

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24. From a rectangular sheet of dimensions $30cm \times 80cm$, four squares of sides x cm are removed at the corners, and the sides are then turned up so as to form an open rectangular

box. What is the value of x, so that the volume of the box is the greatest?

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