MATHS

BOOKS - UNITED BOOK HOUSE

GARDEN REACH BIHARI DAS GIRL'S

EXERCISE

1. If the ration of principal and amount in yearaly is 25:28 then rate of interest per annum is

A. 0.03

B. 0.12

C. 0.1

D. 0.08

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2. If one of the root of the quadratic equation $ax^2 + bx + c = 0, (a \neq 0)$ be zero then

A. a = 0

B. $b = 0$

C. $c = 0$

D. none the these

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3. If two circle do not intersect or touch each other, then the maximum number of common tangents can be drawn is

A. 2

B. 1

C. 3

D. 4

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4. If $\sin\theta = \cos\theta$ then 2θ=

A. 30°

B. 60°

C. 45°

D. 90°

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5. If two cubes of length of each side $2\sqrt{6}$ cm are placed side by side, then the length of the diagonal of the cuboid so produced is ___

A. 10 cm

B. 6 cm

C. 2 cm

D. 12 cm

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6. If the mean of 6,7,x,8,y,16,16 is 9, then.

A. x+y = 21

B. x+y = 17

C. x-y = 21

D. x-y = 19

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7. Fill in the blanks

The compound interest and simple interest for _____year at the fixed rate of interest of fixed sum of money are equal.

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8. If in a quadratic equation $ax^2 + bx + c = 0(a \leq 0)b^2 = 4ac$, then the roots of the equation will be real and _____.

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9. If the length of the sides of two triangles are in proportion, then two triangles are _____

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10. Fill in the blanks

If $\cos^2\theta - \sin^2\theta = \frac{1}{x}$ (x>1), then $\cos^4\theta - \sin^4\theta$=___.

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11. The shape of a pencil with one end sharpened is the combination of a cylinder and a _____

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12. Fill in the blanks

Median of the data 2,3,4,5,6is_____.

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13. Write True or False:

The compound interest will be always less than simple inerest for some money at fixed rate of interest for fixed time.

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14. True or false: The compound ratio of $ab : c^2$, $bc : a^2$ and $ca : b^2$ is 1 : 1.

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15. Only one circle can be drawn through three non-colinear points.

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16. Write True or False:

Value of $\sin^{25}\theta + \cos^{25}\theta = 5$

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17. Write True or False:

By melting a solid right circular cylinder a cubioid is made. The volume of both are same.

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18. Write True or False

Mode of 3,4,5,2,3,4,1,6,4,2 is 4.

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19. The rate of simple interest per annum reduces from 4% to 3 3/4% and for this, a person's annual income decreases by ₹. 60. Determine the principal of that person.

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20. In a business capital of A is $1\frac{1}{2}$ times of the capital of B. If the profit share of B is Rs 1,500 at the end year, then calculate the profit share of A.

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21. If $\frac{2x}{3} = \frac{4y}{5} = \frac{7z}{9}$ then find the value of $\frac{4x + 12y - 21z}{3y}$.

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22. If $x \alpha yz$ and $y \alpha zx$, then show that $(z \neq 0)$ is a constant.

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23. AB is the diameter of a semicircle with length of radius 4 cm C is any point on the semicircle. If $BC = 2\sqrt{7}$ cm then find the length of AC.

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24. The ratio of the consequtive three angles of a cyclic quadrilateral is 1:2:3 . Calculate the measurement of 1st and 3rd angle.

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25. In $\triangle ABC$, if AB = (2a - 1) cm, AC = $2\sqrt{2}a$ cm and Bc = (2a + 1) cm, then write down the value of $\triangle BAC$.

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26. If $\tan\theta = \frac{4}{3}$, find the value of $(\sin\theta + \cos\theta)$.

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27. If x = a $\sec\theta$ and y = b $\tan\theta$, then find the relation between x and y free from θ.

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28. The numerical values of total surface area and volume of a hemisphere are same. Find the length of its base radius.

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29. The curved surface area of a right circular cone is $\sqrt{10}$ times of its base area. Find the ratio of its height and the length of radius.

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30. In a frequency distribution, mean is 8.1, $\sum f_i x_i = 132 + 5k$ and $\sum f_i = 20$. Find the value of k.

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31. If interest is compounded half yearly what will be the compound interest and amound on ₹. 8,000 at the rate of 10% compound interest per annum for 1 1/2 years?

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32. A, B, C start a business jointly investing ₹. 1,80,000 in together. A gives ₹. 20,000 more than that of B and B gives ₹.20,000 more than that of C. Distribute the profit of ₹. 10,800 among them.

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33. If 5 times of a positive whole number is less by 3 than twice of its square, then find the numbers?

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34. In a garden trees are planed in rows. The number of trees in each row is 5 less than the number of rows. If the total number of trees

planted be 336, then find the numbner of trees planted in each row.

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35. Simplify :

$$\frac{1}{\sqrt{2}+\sqrt{3}} - \frac{\sqrt{3}+1}{2+\sqrt{3}} + \frac{\sqrt{2}+1}{3+2\sqrt{2}}$$

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36. If $\frac{x}{y}\alpha x + y$ and $\frac{y}{x}\alpha x - y$, then show that $x^2 - y^2$= constant.

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37. If $\frac{x}{y} = \frac{a+2}{a-2}$ show that $\frac{x^2 - y^2}{x^2 + y^2} = \frac{4a}{a^2 + 4}$

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38. Answer any one : If a/b+c = b/c+a = c/a+b, then prove that each ratio is equal to 1/2 or - 1.

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39. Prove that if any straight line passing through the centre of a circle bisects any chord, which is not a diameter, then the straight line will be perpendicular on that chord.

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40. If two tangents are drawn to a circle from a point outside it, then the line segment joining the point of contact and the exterior point are equal and they subtend equal angles at the centre.

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41. In $\triangle ABC, anglaBAC = 90^\circ$, if CD is a median of $\triangle ABC$, then prove that $BC^2 = CD^2 + 3AD^2$.

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42. AC is a diamter of a circle with centre O, If $\triangle ABC$ is cyclic and $OP \perp AB$, then prove that OP:BC = 1:2.

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43. Construct an equilateral triangle with side 6 cm. Draw the in circle of this triangle.

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44. Draw a cricle with centre at O having the length of radius 2.5 cm. Take a point P at a distance 5 cm from O. Now draw two tangents from P to the circle.

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45. Find the value of $\frac{\sin^2\pi}{3} - \frac{\sec^2\pi}{4} - \cos ec^2\frac{\pi}{4} + \frac{\cot\pi}{4}$.

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46. If $(\sin\theta)(x) = \frac{\cos\theta}{y}$, then prove that $\sin\theta - \cos\theta = \frac{x-y}{\sqrt{x^2+y^2}}$.

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47. show that $(1-\sin^2\alpha)(1-\cos^2\alpha)(1+\cot^2\alpha)(1+\tan^2\alpha)$ = 1.

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48. The heights of two towers are h_1 metre and h_2 metre. If the angle of elevation of the top of the first tower from the foot of the 2nd tower is 60° and the angle of elevation of the 2nd tower from the foot of the 1st tower is 45% then prove that $h_1^2 = 3h_2^2$.

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49. From a point at a height of 30 metre from the water level of a lake the angle of elevation of an aeroplane is 30° and the angle of depression of the shadow of the aeroplane in water of the lake is 60°. What is the height of the aeroplane from the water surface of the lake?

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50. Each side of a cube is decreased by 50%. Calculate the ratio of the volumes of original and changed cube.

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51. The curved surface area of a solid right circular cylinder is 1,320 sq.cm. If the length of base diametre of the cylinder is 14 cm then find the height of the cylinder.

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52. If two solid spheres with the radii of 1 cm and 6 cm lengths are melted and a hollow sphere with the thickness of 1 cm is made, calculate the outer curved surface area of the hollow sphere.

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53. If the median of the given data is 32, then find the value of x and y when total frequency is 100.

Class limit	0-10	10-20	20-30	30-40	40-50	50-60
frequency	10	x	25	30	y	10

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54. Find the mean of the following frequency distribution table.

Class limit	10-20	20-30	30-40	40-50	50-60	60-70
frequency	10	16	20	30	13	11

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55. Draw an ogiven (less than type) from following data.

Class limit	50-60	60-70	70-80	80-90	90-100
frequency	4	8	12	6	10

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