MATHS

BOOKS - UNITED BOOK HOUSE

HINDU SCHOOL

Exercise

1. If the total interest of some money in y years at the rate of simple interest x% per annum is Rs $\frac{Pyx}{25}$, then the principal becomes

A. Rs 2 P

B. Rs4P

C. Rs $\dfrac{P}{2}$

D. $Rs\dfrac{P}{y}$

Answer:

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2. Sum of the roots of equation

$x^2 - 6x + 2 = 0$ is

A. 2

B. -2

C. 6

D. -6

Answer:

3. In $\triangle ABC$ and $\triangle DEF$,
$\angle A = \angle E = 40°$, AB:ED =AC:EF and
$\angle F = 65°$, $\angle B$=

A. 35°

B. 65°

C. 75°

D. 85°

Answer:

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4. Write True or False

If $0^\circ \leq \alpha \leq 90^\circ$ then the minimum value of $\left(\sec^2 \alpha + \cos^2 \alpha\right)$ is 2.

A. 1

B. 2

C. $\dfrac{5}{2}$

D. 0

Answer:

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5. The volumes of two right circular cylinders are same. The ratio of their height is 1 : 2. Find the ratio of their radii.

A. $1 : \sqrt{2}$

B. $\sqrt{2} : 1$

C. $1 : 2$

D. $2 : 1$

Answer:

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6. Median of a frequency distribution indicate graphically with the help of

A. frequency line

B. frequency polygon

C. Histogram

D. Ogive

Answer:

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7. Fill in the blanks:

Without any other conditions in a partnership

business, if the capitals of all the partners are

invested for different time period, then such a

business is called____.

8. Fill in the blanks:

If $x\alpha y$ and $x\alpha z$, then $(y+z)\alpha$_____.

9. Fill in the blanks:

If the opposite angles of a quadrilateral are

supplementary then the vertices of the quadrilateral are____.

10. Fill in the blanks:

If A and B are complementary angles then sin A =__.

11. Fill in the blanks:

In right angled triangle ABC,AC is hypotenuse. If we rotate the triangle completely with respect to the side AB, then a right circular cone is obtained. The radius of the cone is_____.

12. If 35 is removed from the data 30, 34, 35, 36, 37, 38, 39, 40 then the median increased by

13. Write True or False

If the ratio between principal and amount is 8:9, then the rate of simple interest per annum is 1%.

14. Write True or False

$\sqrt{75}$ and $\sqrt{147}$ are similar surds.

15. Write True or False

If the ratio of three sides of a triangle is 3:4:5, then the traingle is always a right angled triangle.

16. Write True or False

If $\sin(\theta - 30^\circ) = \dfrac{1}{2}$ then $\sec\theta = \dfrac{2}{\sqrt{3}}$.

17. Write True or False

The volume of the largest solid cone that can be cut cut out from a solid hemisphere or r unit radius is $\dfrac{\pi r^3}{3}$ cubic unit.

18. Write True or False

Mode of 102,104,117,102,118,104,122,102,104,120 is 120.

19. In a partnership business of two partners total profit is Rs 1,500. If the capital and profit share of Rajib are Rs 6,000 and Rs 900 resp. Then find the capital of Aftab.

20. If the compound interest of some money for 2 years at the rate of compound interest

5% per annum is Rs 615, then find the invested money.

21. If $x = 3 + 2\sqrt{2}$ then find the value of $x + \dfrac{1}{x}$.

22. If x,12,y,27 are in continued proportion then find the positive value of x and y.

23. P is any point inside the circle with centre O. Calculate the minimum length of chord through P if the radius of the circle is 5cm and OP= 3cm.

24. O is any point inside the rectangle ABCD. If OB = 6cm, OD = 8cm and OA = 5cm, then find

the length of OC.

25. In $\triangle ABC$, D and E lie on AB andAC respectively such that DE||BC and AD:DB = 3:1 then calcualte AE:EC.

26. If sinA+sin B = 2 when $0° \leq A \leq 90°$, then find the value of (cosA+ cos B).

27. Area of curved surface of a solid sphere is equal to the curved surface area of a solid right circular cylinder. If the height and the length of diameter of the cylinder both 12 cm in length, then calculate the radius of the sphere.

28. If the radius of a right circular cylinder is increased by 50% and height is decreased by 20%, then the percentage change in volume of cylinder is

29. Find the value of $\sum_{i=1}^{10} (10 \times i)$.

30. A bank gives 5% simple interest per annum. In that bank a man deposits Rs 15,000 at the beginning of the year but withdraws Rs 3000 after 3 months and then again, after 3 months the deposits Rs 8000. Find the amount (principal along with interest) he will get at the end of the year.

31. As a result of sarba Siksha Abhiyan, the students leaving the school before completion, the students are readmitted, so the students in a year is increased by 5% in comparison to its previous year. If the number of such readmitted students in a district be 3,528 in the present year, then find the number of students readmitted 2 year before in this manner.

32. A teacher on attempting to arrange the students for mass drill in the form of a solid square found that 24 students were left over. When he increased the size of the square by one student he found he was short of 25 students. Find the number of students?

33. Passing through the point (– 4, 3) with slope 1/2 then the equation of the line is?

34. If $\dfrac{x + \sqrt{x^2 - 1}}{x - \sqrt{x^2 - 1}} + \dfrac{x - \sqrt{x^2 - 1}}{x + \sqrt{x^2 - 1}} = 14$

,then find the value of x.

35. If $a\alpha b$ and $b\alpha c$ then show that

$$a^3 b^3 + b^3 c^3 + c^3 a^3 \alpha abc(a^3 + b^3 + c^3).$$

36. What should be added to each of a,b,c,d to make the sums proportional?

37. If $\dfrac{x^2 - yz}{a} = \dfrac{y^2 - zx}{b} = \dfrac{z^2 - xy}{c}$, show that (a+b+c)(x+y+z)=(ax+by+cz).

38. Answer any One queation : Prove that, if a perpendicular is draw on the hypotenuse from the right angled triangle, two triangles so formed on the two sides of the perpendicular are each similar to the original triangle and also similar to each other.

39. Prove that opposite angles of a cyclic quadrilateral are supplementary

40. The radius of a circle is 8 cm. Calculate the length of a tangent drawn to this circle from a point at a distance of 10 cm from its centre?

41. Two tangents AB and AC drawn from an external point A of a circle touch the circle at the point B and C. A tangent drawn to a point X lies on minor arc BC intersects AB and AC at

the points D and E respectively. Prove that peremeter of $\triangle\,ADE = 2AB$.

42. Draw a triangle whose two side are 7.6 cm and 6 cm in length and the angle between them is $75°$. Now draw the incircle of this triangle.

43. Geometrically find the value of $\sqrt{29}$.

44. Find the values of

$$\frac{2\tan^2 30°}{1 - \tan^2 30°} + \sec^2 45° - \cot^2 45° - \sec 60°$$

.

45. If $\alpha + \beta = 90°$, prove that $\sec^2 \alpha + \sec^2 \beta = \sec^2 \alpha \sec^2 \beta.$

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46. If $\sec\theta + \tan\theta = x$, prove that $\sin\theta = \dfrac{x^2 - 1}{x^2 + 1}$

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47. A man standing on a railway bridge $5\sqrt{3}$ meters high, observes the engine of a train at an angle of depression $30°$. But after 2 seconds, he observes the engine at an angle of depression $45°$ on the other side of the bridge. Find the speed of the train.

48. Two towers are situated at a distance of $120\sqrt{2}$ metre and the height of one is twice

the height of other. From the mid point of the line joining the bottom of them the angle of elevaion of the top of two towers are complementary. Find the heights two towers.

49. The length of the radius of cross section of a solid right circular rod is 3.2 dcm. By melting the rod 21 solid spheres are made. If the radius of the sphere is 8cm, then find the length of the rod.

50. Length of radius and height of a right circular draw are 21 cm and 21 cm respectively and the length of radius of a solid sphere is 21 cm are taken. After filling the dram completely with water, the sphere was totally immersed and then picked up. Now measure the depth of te level of water in the dram.

51. The length of two sides adjacent to right angle of a right angled triangle are 15 cm and 20 cm. Calculate the volume of the solid formed by completely revolving the triangle once by taking the hypotnuse as axis.

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52. Calculate the mean of obtained marks of 64 students from the given data.

Class limit (marks)	1-4	4-9	9-16	16-17
No. of students	6	12	26	20

53. Find the median of the following data.

Age (years)	20-30	30-40	40-50	50-60	60-70
No. of members	30	38	70	42	20

54. Calculate the mode of the following data.

Age (years)	20-30	30-40	40-50	50-60	60-70
No. of members	30	38	70	42	20