MATHS

BOOKS - UNITED BOOK HOUSE

GHORANASH HIGH SCHOOL

Exercise

1. If the total intetest in 5 yeas is $\dfrac{1}{5}$ the of its

principal, then rate of interest per annum is

A. 0.04

B. 0.05

C. 0.1

D. 0.25

Answer:

▶ **Watch Video Solution**

2. If the roots of the equation

$ax^2 + bx + c = 0 (a \neq 0)$ are reciprocal to

each other then a) a=b b) a=c c) b=c d) $b^2 = 4ac$

A. a=b

B. a=c

C. b=c

D. $b^2 = 4ac$

Answer:

3. If the length of tangent to the cirlce with centre O from any point P which is 26 cm apart from O is 10 cm then the radius of the circle is

    A. 12 cm

    B. 24 cm

    C. $\sqrt{776}$ cm

    D. 48 cm

Answer:

4. The height and volume of a solid right circular cylinder are 7 cm and 28π c.c. The area of curved surface of it is.

A. $14\pi\, sqcm$

B. 28π sq cm

C. 56π sq cm

D. 112π sq m

Answer:

▶ **Watch Video Solution**

5. If $\sin 2\theta = \dfrac{1}{2}$ then $\theta=$

   A. 30°

   B. 60°

   C. 45°

   D. 15°

Answer:

▶ **Watch Video Solution**

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

A. 550

B. 650

C. 450

D. 300

Answer:

▶ **Watch Video Solution**

7. Fill in the blanks :

In a business Bimal invests Rs 1800 and Biplab invests Rs 1000 for 9 months. If the profit share of them are equal then Bimal's money invests for ____months.

▶ **Watch Video Solution**

8. Fill in the blanks :

If A:B = 3:2, B:C = 3:5 then A:B:C =_____

▶ **Watch Video Solution**

9. In ABCD is a cyclic parallelogram then $\angle A$=

▶ **Watch Video Solution**

10. Fill in the blanks :

If the radius of a shpere is r unit then its volume = _____cu. Unit.

▶ **Watch Video Solution**

11. Fill in the blanks :

If $\tan 2\theta . \tan 3\theta = 1$ then value of θ is__

> ▶ **Watch Video Solution**

12. Fill in the blanks

Mean, median, mode are the measure of____.

> ▶ **Watch Video Solution**

13. Write True or False :

Present price of a material is Rs. 100. Price of material decreased by 10% in every year. The price of it after 2 years is Rs.81.

14. Write True or False :

If x $\alpha\dfrac{1}{y}$ then $y\alpha\dfrac{1}{x}$.

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

> ▶ **Watch Video Solution**

16. Write True or False :

If the volume and the base area of solid right circular cone are V cu.unit and A sq.unit respectively the its height is $\dfrac{3V}{A}$ unit.

> ▶ **Watch Video Solution**

17. Write True or False :

If $x = 3\cos\theta$ and $y = 3\sin\theta$ then $x^2 + y^2 = 1$.

▶ **Watch Video Solution**

18. Write True or False :

Median of 4,6,4,5,7,8,5,9,5,7 is 4.

▶ **Watch Video Solution**

19. Total amount (principal+compound interest) in 2 years of Rs 400 is Rs 441. Find the rate of compound interest per annum.

▶ **Watch Video Solution**

20. In a business A and B get ₹ 1,050 as profit. If the principal and profit of A be ₹ 900 and ₹ 630 respectively. Find the principal of B.

▶ **Watch Video Solution**

21. If the roots of equation $5x^2 - 3x + 6 = 0$ are α and β then find the value of $\dfrac{1}{\alpha} + \dfrac{1}{\beta}$

▶ **Watch Video Solution**

22. If $(a + b) : \sqrt{ab} = 2 : 1$ find a:b.

▶ **Watch Video Solution**

23. The length of diameter in a circle is 10 cm. If the distance from centre to chord of this

circle is 4 cm, then find the length of this chord.

24. In a cyclic quadrilateral ABCD, find the value of $\dfrac{\tan A}{2} \dfrac{\tan B}{2} \dfrac{\tan C}{2} \dfrac{\tan D}{2}$.

25. The line parallel to BC of $\triangle ABC$ meets AB and AC at P and Q respectively. If AP = 4cm,

QC = 9cm and PB = AQ, then find the length of PB.

26. If $r \cos \theta = \dfrac{1}{2}$ and $r \sin \theta = \dfrac{\sqrt{3}}{2}$, then find the value of r , when $0^\circ < \theta < 90^\circ$.

27. If $\tan \theta + \cot \theta = 2$, then find the value of $\tan^5 \theta + \cot^5 \theta$.

28. The length of diagonal of a cube is $4\sqrt{3}cm$.

Find its total surface area.

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.

30. If $u_i = \dfrac{x_i - 35}{10}$, $\sum f_i u_i = 30$ and $\sum f_i = 60$, then determine the value of $\bar{x}$.

31. At the same rate of simple interest in percent per annum, if a principal becomes the amount of Rs 1248 in 7 years and or Rs 1056 in 4 years. Find the principal and rate of simple interest in percent per annum.

32. The price of any machine decreased by 10% in each year. If the price of the machine will Rs 43740 after 3 years, then find the price of that machine at present.

33. Answer any one : 1/a+b+x = 1/a+1/b+1/x, $[x \neq 0, \ - (a + b)]$

34. The area and perimeter of a rectangular park are 600 sq.m. and 100 m respectively. Find the length and breadth of the park.

35. If $x = \dfrac{\sqrt{7} + \sqrt{3}}{\sqrt{7} - \sqrt{3}}$ and xy = 1, find the value of $\dfrac{x^2 + 3xy + y^2}{x^2 - 3xy + y^2}$

36. If $a \alpha b$ and $b \alpha c$, show that $a^3 + b^3 + c^3 \alpha 5abc$.

37. If a,b,c are in continued proportion, then show that $\dfrac{1}{b^2} = \dfrac{1}{b^2 - a^2} + \dfrac{1}{b^2 - c^2}$

38. If $\dfrac{a^2}{b+c} = \dfrac{b^2}{a+c} = \dfrac{c^2}{a+b} = 1,$ then show that $\dfrac{1}{1+a} + \dfrac{1}{1+b} + \dfrac{1}{1+c} = 1.$

▶ Watch Video Solution

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

▶ Watch Video Solution

40. State and prove Pythagoras theorem.

41. Prove that two equal chords are equidistant from the centre of the circle.

42. Two chords AB and AC of the larger of two concentrci circles touch the other circle at points P and Q respectively. Prove that $PQ = \dfrac{1}{2}BC$.

43. Draw a triangle having sides 6cm, 8 cm and 10 cm. Now draw the incircle of this triangle.

44. Geometrically find the value of $\sqrt{35}$.

45. If $\dfrac{\sin\theta + \cos\theta}{\sin\theta - \cos\theta} = 5$ then find the value of $\tan\theta$.

46. Solve:

$$x\tan 60° \cos^2 30° = \dfrac{\tan^2 45° \sec 60°}{\cos ec 60°}$$

47. শূন্যস্থান পূরণ করো :

$x = a\cos(90° - \theta), y = b\cot(90° - \theta)$ হলে

$\dfrac{a^2}{x^2} - \dfrac{b^2}{y^2} = \underline{\quad\quad}$ ।

> ▶ **Watch Video Solution**

48. From a point on the roof a house 11 metres height, it is observed that the angles of depression of the tip and foot of a lamp post are $30°$ and $60°$ respectively. Find the height of the lamp post.

49. Answer any One question : The length of the shodow of a post becomes 3 meters smaller when the angle of elevation of the Sun increases from $45°$ to $60°$. Find the height of the post.

50. The ratio of lengh, breadth of height of a solid cubiod is 4:3:2.If the total surface area of

its is 468 sq.cm then find the volume of it.

51. Three spheres made of copper having the lengths of 3 cm. 4 cm and 5 cm radii are melted and large sphere is made Calculate the length of radius of large sphere.

52. The base radius of a right circular cylinder and a cone are equal and the ratio of their volume is 3:2. Prove that the height of the cone is twice the height of the cylinder.

53. If the Ariothmetic mean of the following data is 15, then find the value of P.

Variable	5	10	15	20	25
frequency	6	P	6	10	5

54. Find the median of the following data

Class limit	0-10	10-20	20-30	30-40	40-50	50-60	60-70
frequency	4	7	10	15	10	8	5

> ▶ Watch Video Solution

55. Find the mode of the following data.

Class limit	45-54	55-64	65-74	75-84	85-94	95-104
frequency	8	13	19	32	12	6

> ▶ Watch Video Solution