MATHS

BOOKS - UNITED BOOK HOUSE

SPRINGDALE HIGH SCHOOL

Exercise

1. A sum of money at simple interest amounts to ₹ 815 in 3years and to ₹ 854 in 4years. The sum is

A. Rs 750

B. Rs 650

C. Rs 698

D. Rs 680

Answer:

2. If, $\sqrt{\dfrac{52}{169}} = a\sqrt{n}$ then (a, n)=

A. $(2/13, \; 13)$

B. $(2, \; 13)$

C. $(13. \; .2, \; 13)$

D. $(13, \; 13/2$

Answer:

3. Two circles intersects at point C and D. Straight lines through C and D meet two circles at B and F, and A and E respectively. If

$\angle DAB = 75°$ then value of the PM $\angle DEF$ is balchera

A. $105°$

B. $95°$

C. $70°$

D. $75°$

Answer:

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4. If the volume of two right circular cylinder are same and their height are in the ratio 1:3, then the ratio of length of radii is-

A. $\sqrt{3}:1$

B. $1:\sqrt{3}$

C. $1:3$

D. $3:1$

Answer:

5. If $f(x) = \cos^2 x + \sec^2 x$ then

A. f(x)lt1

B. f(x)=1

C. 1ltf(x)lt2

D. f(x)gt2

Answer:

6. If the number 35 is absent in the set of numbers

30,34,3,536,37,38,39,40 then the median is:

A. inreased by 0.5

B. decreased by 0.5

C. increased by 1

D. decreased bny 1

Answer:

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7. Fill in the blanks

Mode of the numbers 5,5,10,10,15,15,15,15,20,25 is_____.

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8. Fill in the blanks

The number of surfaces of a truncated cone are_____.

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9. Fill in the blanks

If the angle of elevation of sun is_____$45°$, then the length of shadow of a tower will be less than the height of the tower.

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10. Fill in the blanks

If a line intersects a circle at two points, then it is called_____.

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11. Fill in the blanks

The numerator of a ratio is called the_____.

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12. Fill in the blanks

If 6(A's capital) = 8(B's capital) = 10(C's capital) then the ratio of their captial is_____.

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13. Write True or False

The principal is inversely proportional to the rate of interest if time and total interest remain unchanged.

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14. Write True or False

$(x + 2)^2 = x^2 + 2x + 1$ is a quadratic equation.

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15. Write True or False

All the circles are similar.

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16. Write True or False

$\tan\theta.\cot\theta = 1$ for $0°$ `

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17. Write True or False

If the length of the radius of a right circular cylinder is doubled and height is halved , then lateral surface area is equal to the lateral surface area of the original cylinder.

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18. Write True or False

The sum of median and mode of the data given by 12,15,11,13,18,11,13,12,13

is 25.

19. The population of a town is 8000. After how many years the population of the town will be 9261 if the rate of growth of the population be 5%.

20. In a business A invests Rs 600 and B invests Rs 900 for 4 month. If A's profit is equal to $\dfrac{5}{11}$ part of the total profit, then find how many months capital of A was invested in the business.

21. If a,b, are real, then show that the roots of the equation $(x - a)(x - b) = b^2$ are always real.

22. Evaluate the value of $\sqrt{6 + \sqrt{6 + \sqrt{6 + \ldots} }} \to Infinity$

23. 6 is the mean proportional between two numbers x ad y and 48 is the third proportional of x and y. Find the numbers.

24. In $\triangle ABC, \angle A = 90°$. A perpendicular AD from A to Bc is drawn which interescts BC at D. If BC = 14cm and BD = 5cm, then find the

length of AD.

25. Two equal circles with radius 10cm. Intersect each other and the length of their common chord is 12cm. Find the distance between two centres of two cricles.

26. Is $\sec\theta < 1$ is possible? Give your argument.

27. If $\cos\theta = 0.6$ find the value of $5\sin\theta - 3\tan\theta$.

28. The surface areas of two spheres are in the ratio 1:9. Find the ratio of their volumes.

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29. The perimeter of one surface of a cube is 20cm. What is the volume of the cube?

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30. Calculate normality of $0.6\,\%$ (w/v) of H_2O_2 (aq)

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31. Calculate

Median of the data given below : daily wages of 6 workers are Rs 140,Rs.220, Rs 90, Rs. 170, Rs 140, Rs.200.

32. A,B,C have started a partnership business by investing Rs 6,000 Rs 8,000 and Rs 9,000. After few months A has invested Rs 3000 more. At the end of the year, if the total profit is Rs 3,000 and the profit share of C is Rs 10,800, then find the period for which A's capital of Rs 3,000 has been invested.

33. Remenbabu deposits Rs 3,70,000 in total in three banks. The rates of simple interest per annum in three banks are 4%,5% and 6% respectively, after 1 year the total interests in three banks are equal. Calculate the amount he heas deposited in eah of the three banks.

34. Solve: $\dfrac{a}{ax-1} + \dfrac{b}{bx-1} = a + b\left(x \neq \dfrac{1}{a}, \dfrac{1}{b}\right).$

35. Ajay has written a two digit number in his copy of which the tens digit is less by 4 tha the unit digit. If the product of the two digit is subrated from the number , the result is equal to the square of the difference of two digits of that number. Write the number which Ajay can write in his copy.

36. Simplify : $\left(\sqrt{5} + \sqrt{3}\right)\left(\dfrac{3\sqrt{3}}{\sqrt{5} + \sqrt{2}} - \dfrac{\sqrt{5}}{\sqrt{3} + \sqrt{2}}\right)$

37. If $(3x - 4y) \propto \sqrt{xy}$ then show that $(x^2 + y^2) \propto xy$.

38. Using the properties of proportion, solve for x, given $\dfrac{x^4 + 1}{2x^2} = \dfrac{17}{8}$.

39. $\dfrac{bz + cy}{a} = \dfrac{cx + az}{b} = \dfrac{ay + bx}{c}$ then prove $\dfrac{x}{a(b^2 + c^2 - a^2)} = \dfrac{y}{b(c^2 + a^2 - b^2)} = \dfrac{z}{a(a^2 + b^2 - c^2)}$

40. Prove that the front angle formed at the centre of a circle by an arc, is double of the angle formed by the same arc at any point on the

circle.

41. State and Prove Pythagoras theorem.

42. Prove that "The greatest chord of circle is its diameter".

43. Prove that cyclic trapezium is isoscles trapezium and the length of its diagonals are same.

44. Geometrically calculate the value of $\sqrt{23}$. (Only traces of construction are required).

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45. Draw a right angled triangle length of hypotenuse and one of another side are 9 cm and 5.5 cm respectively. Now draw the incircle of this triangle.

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46. The angles of a triangle are $x°$, $(x+y)°$ and $(x+2y)°$. The ratio of number of degree of t he least angle and the number of radians of the greatest angle is $60:\pi$. Find the angles of the traingles in degree.

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47. If (1+sinA)(1+sinB)(1+sinC) = (1-sinA)(1-sinB)(1-sinC), then prove that the value of each side = $\pm \cos A \cos B \cos C$,

48. Find value of $\left(\dfrac{\tan 20°}{\cos ec70°} \right)^2 + \left(\dfrac{\cot 20°}{\sec 70°} \right)^2 + 2\tan 15° \tan 37° \tan 53° \tan 60° \tan 75°$.

49. If the angle of elevation of the top of a Monument when observed form a point on the roof of a five storied building of 18 metre height is $45°$ and the angle of depression of the foot of the Monument, when observed from the same point $60°$. What is the height of the MOnument?

50. The shadow of a flagstaff is three times as long as the shadow of the flagstaff when the sun days meet the ground at an angle of $60°$. Find the angle between the sun rays and the ground at the time of longer shadow?

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51. Half of the total surface area of a rectangular parallelopiped is equal to the square of length of its diagonal. Show that the rectangular parallelopiped is a cube.

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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.

53. If a wooden log with a shape of rectangular parallelopiped with square cross section is made by wasting minimum wood from a right circular wooden log having the diameter of $12\sqrt{2}$ metre and length 21 metre. Calculate the quantity of remaining wood and the quantity of wasted wood.

54. The mean monthly salary of all employees in a company is Rs, 6000. The mean monthly salary of male and female employees are Rs.6200 and Rs. 5200 respectively. Find the percentage of males and females employed in the company.

55. Draw Ogive of the following frequency distribution and find median fron this the Ogive.

Class Interval	0-10	10-20	20-30	30-40	40-50	50-60
frequency	7	10	23	50	6	4.

56. The given frequency distribution table shows the age of 200 members of development committee of our locality.find mode

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