MATHS

BOOKS - UNITED BOOK HOUSE

HATI HIGH SCHOOL
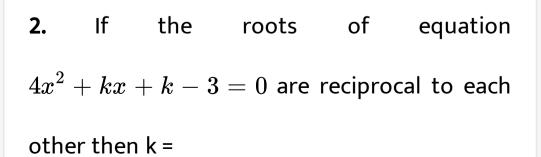
Exercise

1. Total interest of Rs 100 at y% per annum in

y^2 years is

A. Rs y

B. Rsy^2

C. Rsy^3

D. $Rs\dfrac{1}{y}$

Answer:

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2. If the roots of equation

$4x^2 + kx + k - 3 = 0$ are reciprocal to each

other then k =

A. 2

B. 1

C. 7

D. 3

Answer:

3. AB is the diameter of a cyclic quadrilateral ABCD having AB||DC. If $\angle CAB = 30°$ then $\angle ADC$=

A. $90\degree$

B. $100\degree$

C. $120\degree$

D. $130\degree$

Answer:

4. If $\sin(\theta - 30\degree) = \dfrac{\sqrt{3}}{2}$ then $\sec \dfrac{\theta}{2} =$

A. $\dfrac{1}{\sqrt{3}}$

B. $\dfrac{1}{\sqrt{2}}$

C. $\sqrt{2}$

D. $\dfrac{1}{2}$

Answer:

5. If the length of diagonal of a cube is $5\sqrt{3}$ cm , then the length of its edges is.

A. 60 cm

B. 65 cm

C. 5 cm

D. 55 cm

Answer:

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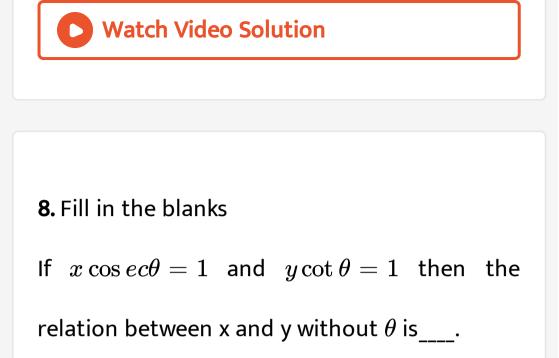**6.** Write True or False :

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

A. 8

B. 6.5

C. 5.5

D. 5

Answer:

7. Fill in the blanks

In a business, Samir invests Rs 4000 for 3 months and Amita invests Rs 3000 for 5 months. The ratio of their profit share is_____
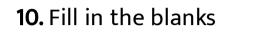
8. Fill in the blanks

If $x \cos ec\theta = 1$ and $y \cot \theta = 1$ then the relation between x and y without θ is____.

9. Fill in the blanks

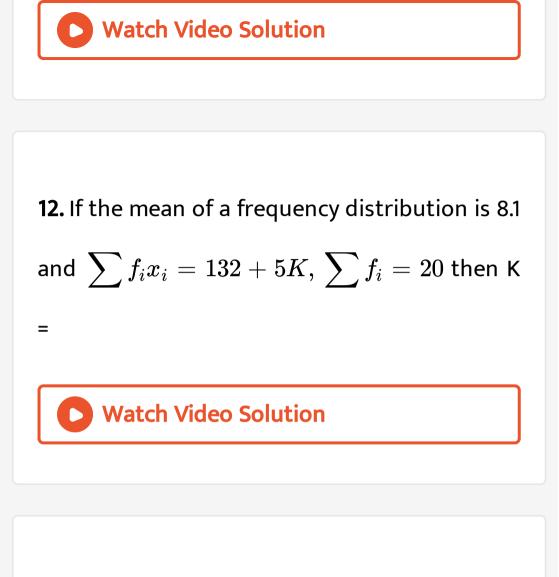If the total surface area of a solid hemisphere is 147π, then its radius is_____.

10. Fill in the blanks

If $7\sqrt{2}, x, 7 - \sqrt{2}$ are in continued proportion

then x=_____

11. Fill in the blanks

A tangent from an external point A' touches the circle with centre O is B. If OB = 5cm, OA = 13 cm, then the length of AB is_____.
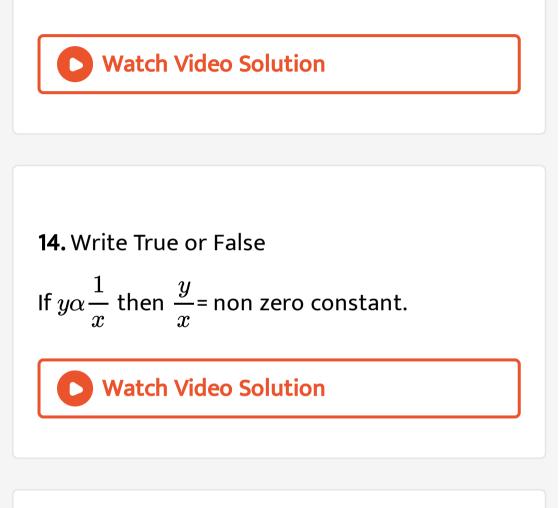
12. If the mean of a frequency distribution is 8.1

and $\sum f_i x_i = 132 + 5K$, $\sum f_i = 20$ then K

=

13. Write True or False :

The compound interest will be increased if the

phase of interest raise from 6 months to 1 year.

14. Write True or False

If $y\alpha\dfrac{1}{x}$ then $\dfrac{y}{x}$= non zero constant.

15. Write True or False :

The circum centre of a triangle is always inside

the triangle.

16. Write True or False :

Value of $(\sin 43° \cos 47° + \cos 43° \sin 47°)$ is

2.

17. Write True or False :

Mean and median of the date 5,3,9,6,7 are

equal.

18. Write True or False :

The length of diameter and the length of a copper wire are 1 cm and 14 cm. The total volume of cupper is 440 cubic cm.
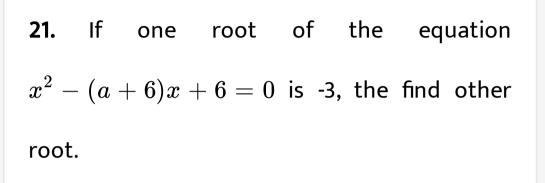
19. If the total interest of some money for 2 years at the rate of interest 5% per annum is Rs 65, then find the money.

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 one root of the equation $x^2 - (a + 6)x + 6 = 0$ is -3, the find other root.

22. If $x = 5 + 2\sqrt{6}$ then find the value of $\sqrt{x} + \dfrac{1}{\sqrt{x}}$.

23. In $\triangle ABC$, DE||BC. If AD = x, BD= x+3, AE = x-2, EC = x-4, then find the value of x.

24. Two tangetns from A and B which are lie on the circle intersect at the point P. If $\angle APB = 68°$ then find the measurement of $\angle PAB$.

25. The point O is situated within the rectangular region ABCD in such a way that OB = 6 cm, OD = 8 cm and OA = 5 cm. Determine the length of OC.

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26. If the area of one surface of a cube is 64 sq.meter, then find the length of its diagonal.

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27. If the ratio of heights and the ratio of base circumference of two right circular cylinders are 1:2 and 3:4 respectively, then calculate the ratio of their volumes.

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28. Convert $83.12°$ into degrees, minutes and seconds.

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29. If $\tan(\theta + 15°) = \sqrt{3}$, find the value of $\sin\theta + \cos\theta$.

30. If the mean of the table is 8, then find the value of P.

x_i	3	5	8	9	11	13
f_i	6	8	5	P	8	4

31. A man deposited Rs 1,87,000 for his son of 12 yrs. Age and daughter of 14 yrs, age in the bank at the rate of simple interesst 5% per annum in such a way that both of them will get equal principal along with intersect at their 18 years of age. Calculate the money he had deposited in the bank for each of his son and daughter.

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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.
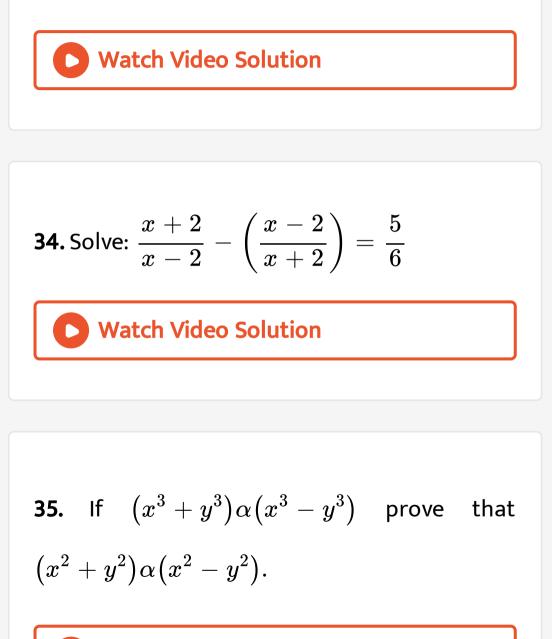
33. The unit digit of a two digit number exceeds the tens digit by 6 and the product of two digits is less by 12 then the number.

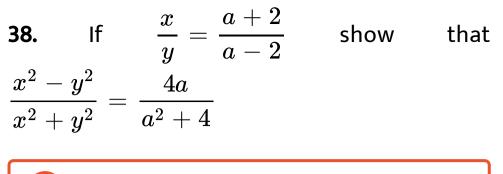Calculate the possible unit digit of two digit number.

34. Solve: $\dfrac{x+2}{x-2} - \left(\dfrac{x-2}{x+2}\right) = \dfrac{5}{6}$

35. If $\left(x^3 + y^3\right)\alpha\left(x^3 - y^3\right)$ prove that $\left(x^2 + y^2\right)\alpha\left(x^2 - y^2\right).$

36. If $x = \dfrac{\sqrt{7} + \sqrt{3}}{\sqrt{7} - \sqrt{3}}$ and xy = 1, find the value

of $\dfrac{x^2 + 3xy + y^2}{x^2 - 3xy + y^2}$

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

show that $\dfrac{1}{1 + a} + \dfrac{1}{1 + b} + \dfrac{1}{1 + c} = 1.$

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38. If $\dfrac{x}{y} = \dfrac{a+2}{a-2}$ show that

$$\dfrac{x^2 - y^2}{x^2 + y^2} = \dfrac{4a}{a^2 + 4}$$

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39. State and prove Pythagoras theorem.

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

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41. AB and CD are two chords of a cricle. Extended BA and CD intersect at P. Prove that $\angle PCB = \angle PAD$.

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42. AD is a median of $\triangle ABC$. A straight line parallel to BC intersect AB and AC at P and Q respectively. Prove that AD bisects PQ.

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43. Draw a triangle whose one of the side is 7.2 cm and adjacent angles of this side are $50°$ and $70°$. Now draw the incircle of this traingle.

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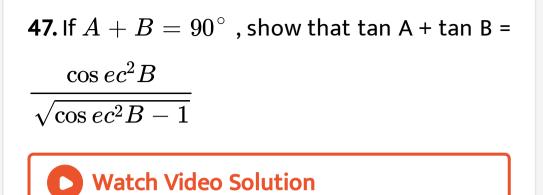
44. Draw a rectangle having sides 10 cm and 5 cm. Now draw a square whose area is equal to the area of this rectangle.

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45. One of the acute angle of a right angled triangle is $30°$. Find the other two angle in circular measure.

46. If $\tan\theta = \dfrac{3}{4}$ show that $\sqrt{\dfrac{1-\sin\theta}{1+\sin\theta}} = \dfrac{1}{2}$.

47. If $A + B = 90°$, show that tan A + tan B =

$$\frac{\cos ec^2 B}{\sqrt{\cos ec^2 B - 1}}$$

48. A house of 15 metres hegiht, stands on one side of a park and from a point on the roof of the house of the angle of depression of the foot of the chimney of brick kilm of the other side is $30°$ and the angle of elevation of the

top of the chimney of brick kiln is $60°$.

Calculate the height of the chimney

49. From roof of a multi storeyed building a man saw a running bus came straight towards the building. If the angle of depression in 6 minutes raise from $30°$ and $60°$, then when the bus will come at the foot of the building?

50. Determine the volume of a solid right circular cone which can be made from a solid wooden cube of 4.2 dcm edge length by wasting minimum quantity of wood.

51. The length of outer and inner diameter of a hallow right circular cylinder are 16 cm and 12 cm respectively. Height of cylinder is 36 cm. Calculate how many solid cylinders of 2 cm

radius and 6 cm length may be obtained by melting this cylinder.

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. Find the median of the following distribution table:

Marks	0-10	10-30	30-60	60-70	70-90
Number of Student	7	10	23	50	6

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54. Find the mean of the following distribution table:

Class-limit	25-29	30-34	35-39	40-44	45-59	50-59,
frequency	10	12	15	5	3	5

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55. Find the mode of the following data.

Age (year)	10	20	30	40	50	60
Number of Person	15.	-32	51	78	97	109

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