

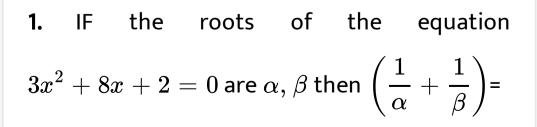


## MATHS

# **BOOKS - UNITED BOOK HOUSE**

# **VIDYASAGAR VIDYAPITH MIDNAPORE**





A.  $-\frac{3}{8}$ B.  $\frac{2}{3}$ C. -4

D. 4

#### Answer:



**2.** A principal becomes twice its amount in 20 years at a certain rate of simple interest. At

the same rate of simple interest, that principal

#### becomes thrice of its amount in

A. 30 years

B. 35 years

C. 40 years

D. 45 years

Answer:

**3.** If  $A+B=90^\circ$  and  $\sin A=rac{1}{3}$  , then sec

B=

A. 3

B. 
$$\frac{1}{3}$$
  
C.  $\frac{3}{2}\sqrt{2}$ 

#### Answer:

**4.** AOB is a diamter of a circle with centreO, C is any point on the circle If AC = 6cm and BC = 8cm then AB=

A. 14 cm

B. 10 cm

C. 5 cm

D. 2cm

#### Answer:

5. If the area of a side face of a cube is 256

sq.m. then its volume is

A.  $64cm^3$ 

 $\mathsf{B.}\,216cm^3$ 

 $\mathsf{C.}\,256cm^3$ 

 $\mathsf{D.}\,4096cm^3$ 

#### Answer:

**6.** If the median of arranging the ascending order of data 8,9,12,17,x+2,x+4,30,31,34,39 is 24 then x=

A. 20

B. 21

C. 22

D. 24

#### Answer:



7. Fill in the blanks

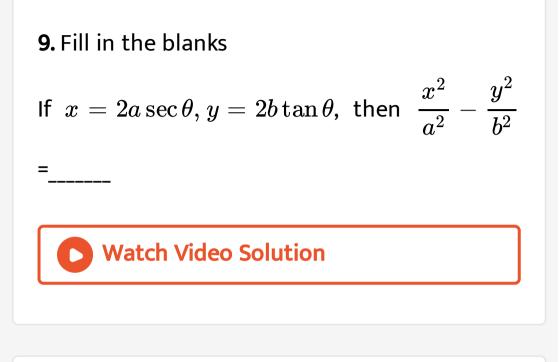
The compound interest of Rs\_\_\_\_\_ for 2

years at the rate of interest 5% p.a. is Rs 441.



### 8. Fill in the blanks

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Conjugate surds of \left(\sqrt{5}-1
ight) is_____.
```



## 10. Fill in the blanks

Two circles touch each other externally. The

common tangetn from that point is

called\_\_\_\_\_common tangent.

**11.** Fill in the blanks

The curved surface area of a right circular cone is  $\sqrt{6}$  times of its base area. The ratio of its height and radius is

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## 12. Fill in the blanks

If the mode of the data 12,5,x,10,13,5,13,12,x is 5

then x=\_\_\_



In a business the ratio of the capital of A and B

is 5:4. if the profit share of A is Rs 800 then the

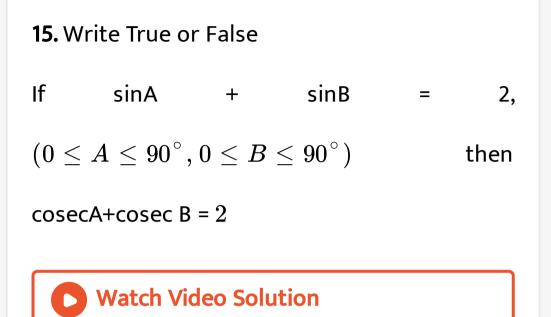
profit share of B is Rs 640.



#### 14. Write True or False

If 2a = 5b= 8c then a:c = 4:1.

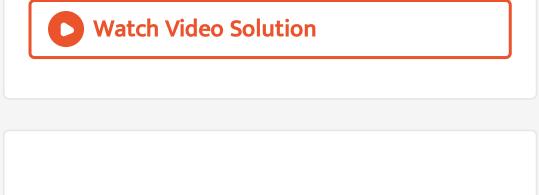




#### 16. Write True or False

The volume of the largest solid cone that can

be cut out from a solid hemisphere of r units radius is  $\frac{1}{3}\pi r^3$  cu. Unit.



#### 17. Write True or False

If mean of the numbers 7,9,x,12,y,17 is 11 then

x+y = 30.



**18.** In 1 year if the ratio of principal and amount is 8:9 , then calculate the rate of interest per annum.





19. What should be added to each of

12,22,42,72 to make the sums proportional?

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**20.** In a business , A,B,C invest Rs 500 , Rs 450 and Rs 700 respectively. If the total profit at the end of year is Rs 1155 then what is the profit share of C.



## **21.** If $x^2 + y^2 lpha xy$ then show that x + y lpha x - y



**22.** Length of two chords of a circle with centre at O are 6 cm and 8 cm. If the length from centre to the smaller chord is 4 cm then find the distance from centre of the greater chord.

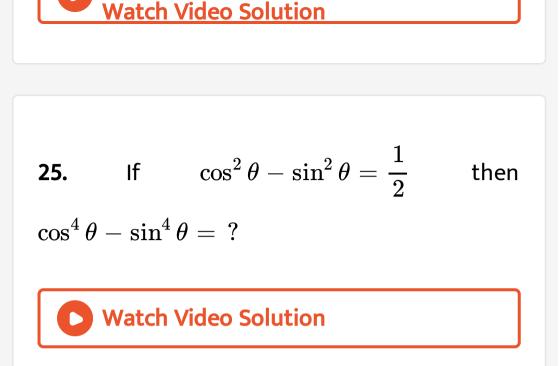


**23.** In  $\triangle ABC$ , AB=AC. If we draw a circle with diameter AB, the circle intersect BC at D, then BD:CD=?

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**24.** The lengths of radii of two circles are 8 cm and 3 cm and the distance between two centres is 13 cm. What is the length of the direct common tangent of two circle?





26. If  $\sec 5\theta = \cos ec(\theta + 36^{\circ})$  and  $5\theta$  is a positive acute angle then find the value of  $\cos ec5\theta$ .

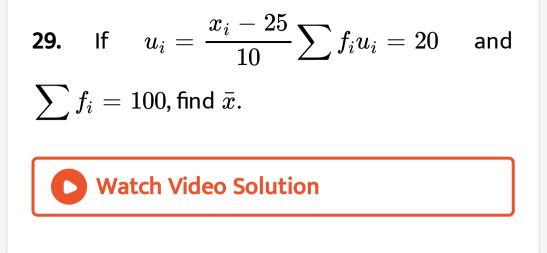
27. If the lengh of diagonal of a cube is 6 cm

then find the total surface area of it.

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**28.** The length of radius of a right circular cylinder is decreased by 50% and height is increased by 50%. How much percent of the volume will be changed?



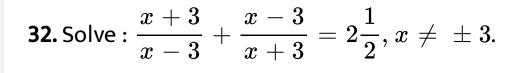


**30.** At present the sum of the number of students in all the secondary institutions in a district is 3993. If the number of students increased in a year was 10% of that in the previous year, then find the sum of the number of students in all the secondary institutions in the districts 3 years before?



**31.** Pradipbabu and Aminabiib started a business jointly by investing Rs 24,000 and Rs 30,000 respectively at the beginning of the year. After 5 months pradipbabu invested Rs 4000 more. At the end of the year, if the total profit was Rs 27,716 then find the profit sphere of each of them.





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**33.** The spedd of a boat in still water is 8 km/hr. if the boat can go 15 kms down stream and 22 kms up stream in 5 hours, then calculate the speed of the stream.



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

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**35.** If 5 men can cultivate om 10 bighas of land in 9 days, calculate by theory of variation how long will be taken by 25 men for cultivating 30 bighas of land.

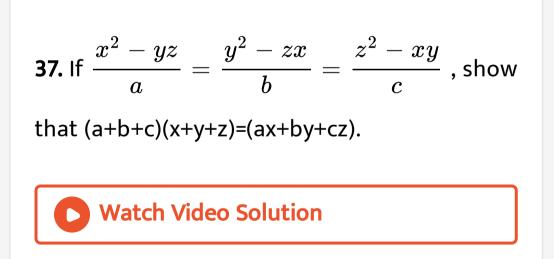


**36.** If a,b,c,d are in continued proportion then

#### show

that

$${\left( {b - c} 
ight)^2 + \left( {c - a} 
ight)^2 + \left( {b - d} 
ight)^2 = {\left( {a - d} 
ight)^2 }.$$



**38.** 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.

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**39.** State and Prove Pythagoras theorem.

40. ABCD is a cyclic quadrilaterla. Extended AB

and DC intersect at P. Prove that PA.PB = PC.PD.

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

**42.** Draw a square whose length of each side is

 $\sqrt{24}$  cm. Calculate its diagonal.



**43.** 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.

**44.** The length of radius of a circle is 28 cm. Determine the circular value of angle subteded by an arc of 5.5 cm. Length at the centre of this circle.

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**45.** If 
$$5\sin^2 heta+4\cos^2 heta=rac{9}{2}$$
 , find the value of

 $\tan \theta$ .

**46.** Findthevalueof $\cot 12^{\circ} \cot 38^{\circ} \cot 52^{\circ} \cot 78^{\circ} \cot 60^{\circ}$ .**Watch Video Solution** 

**47.** A man standing on a railway overbirdge of  $5\sqrt{3}$  m height observed the engine of the train from one side of the bridge at an angle of depression of  $30^{\circ}$ . But just after 2 seconds, he observed the engine at an angle of

depression of  $45^\circ$  from the other side of the

bridge. Find the speed of the train.



**48.** If the angle of depression of two consecute kilometer stones on a road from an aeroplane are  $60^{\circ}$  and  $30^{\circ}$  respectively, then find the height of the aeroplane when two km stones stand on the same side of the aeroplane.



**49.** There sphere made of copper having the lengths of 3cm, 4 cm and 5 cm radii are melted and a large sphere is made. Calculate the length of diamter of the large sphere.

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**50.** Answer any two questions : Determine the volume of a solid right circular cone which can be made from a solid wooden cube of 4.2 dcm efge length by wasting minimum quantity of wood .



**51.** Height of a right circular cylinder is twice of its radius. If the height would be 6 times of its radius, then the volume of the cylinder would be greater by 539 cubic dcm. Calculate the height of the cylinder.



52. Draw the o give (both greater than type

and less than type) from the given frequency

distribution table and from it find the median.

Class		50-55 55-60		60-65 65-70		70-75 75-80		80-85
frequency	*7	2	8.	12	24	34	16	. 4 -

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## 53. Calculate the mean of the following data

by step devaition method.

		_			•
Class limit	0-30	30-60	60-90	90-120	120-150
frquency	12	15	,20	25	8



## 54. Find the mode of the following frequency

#### distribution table:

Class	45-54	55-64	65-74	75-84	85-94	95-104
frequency	8,	. 1,3	.19	32	12	- 6