



MATHS

BOOKS - EDUCART PUBLICATION

SAMPLE PAPER SELF ASSESSMENT 11

Section I

1. Without performing actual division, check if $\frac{17}{30}$ is a terminating decimal.



Watch Video Solution

2. Find the value of x so that the distance between the points $(-3, 4)$ and $(x, -4)$ is 10 units.



[Watch Video Solution](#)

3. The vertices of an equilateral triangle ABC are $(0, 0)$, $(0, y)$ and $(3, \sqrt{3})$, then find the value of y



[Watch Video Solution](#)

4. Solve for x : $3^{2x^2 - 3x} = 3^5$



[Watch Video Solution](#)

5. A right triangle has hypotenuse of length p *cm* and one side of length q *cm* . If $p - q = 1$, find the length of the third side of the triangle.



[Watch Video Solution](#)

6. If a hexagon $ABCDEF$ circumscribe a circle,
prove that

$$AB + CD + EF = BC + DE + FA$$



[Watch Video Solution](#)

7. Three identical cubes each of volume 27 cu cm are joined together end to end. What are the dimensions of the resulting cuboid ?



[Watch Video Solution](#)

8. If a chord of a circle of radius ' r ' subtends a right angle at the centre of the circle, then determine the area of the corresponding segment ?



[Watch Video Solution](#)

9. What is the volume of the material in a spherical shell with inner radius ' r ' and outer radius ' R ' ?



[Watch Video Solution](#)

10. If $\tan \theta = 1$, then calculate the value of $\sec \theta + \operatorname{cosec} \theta$



[Watch Video Solution](#)

11. If $3 \tan^2 x = 1$ ($0^\circ < x < 90^\circ$), then what is the value of x



[Watch Video Solution](#)

12. what is the positive real of $64x^2 - 1 = 0$?



[Watch Video Solution](#)

13. The radii of 2 cylinders are in the ratio 1:2 and their heights are in the ratio 3: 4. Then, find the ratio of their volumes



[Watch Video Solution](#)

14. If α and β be the zeros of the quadratic polynomial $2x^2 + 5x + 1$, then calculate the value of $\alpha + \beta + \alpha\beta$?



Watch Video Solution

15. The mid value of a class interval is 42 and the class size is 10 then find lower and upper limits.



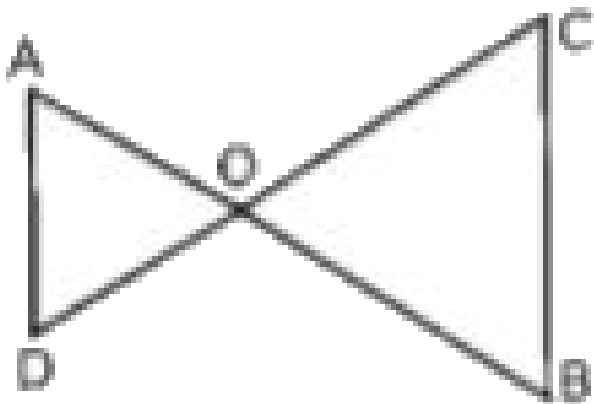
Watch Video Solution

16. An integer is chosen at random between 1 and 100. Find the probability that chosen number is divisible by 10



Watch Video Solution

17. In the figure. If $\frac{OA}{OD} = \frac{OC}{OB}$, then



which pair of angle are equal?



[Watch Video Solution](#)

18. Check if 0.2 is a root of the equation

$$x^2 - 0.4 = 0$$



[Watch Video Solution](#)

19. If 3 times the 3^{rd} term of an A.P is equal to

5 times the 5^{th} term, then find its 8^{th} term



[Watch Video Solution](#)

20. Find the solution of the following pair of equation:

$$x - 3y = 2, 3x - y = 14$$



Watch Video Solution

21. The chord of a circle of radius 8 cm subtends a right angle at its centre. Find the length of the chord.

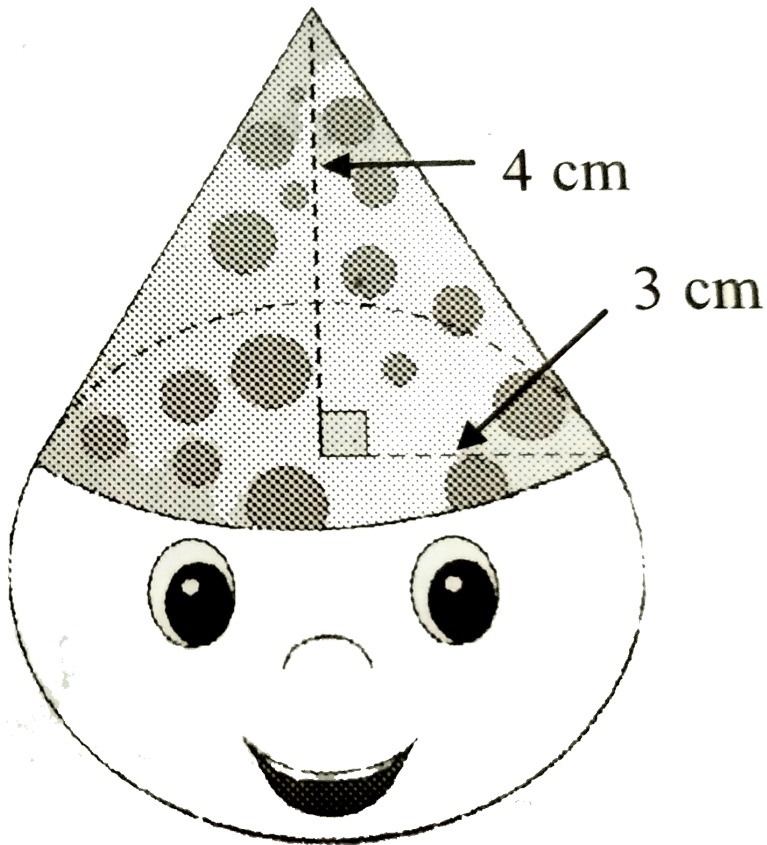


Watch Video Solution

Section II

1. The given figure shows a toy. Its lower part is a hemisphere and the upper part is a cone. Find the volume and the surface area of the

toy from the measures shown in the figure.



A. 216 sq units

B. 108 sq units

C. 90 sq units

D. 72 sq units

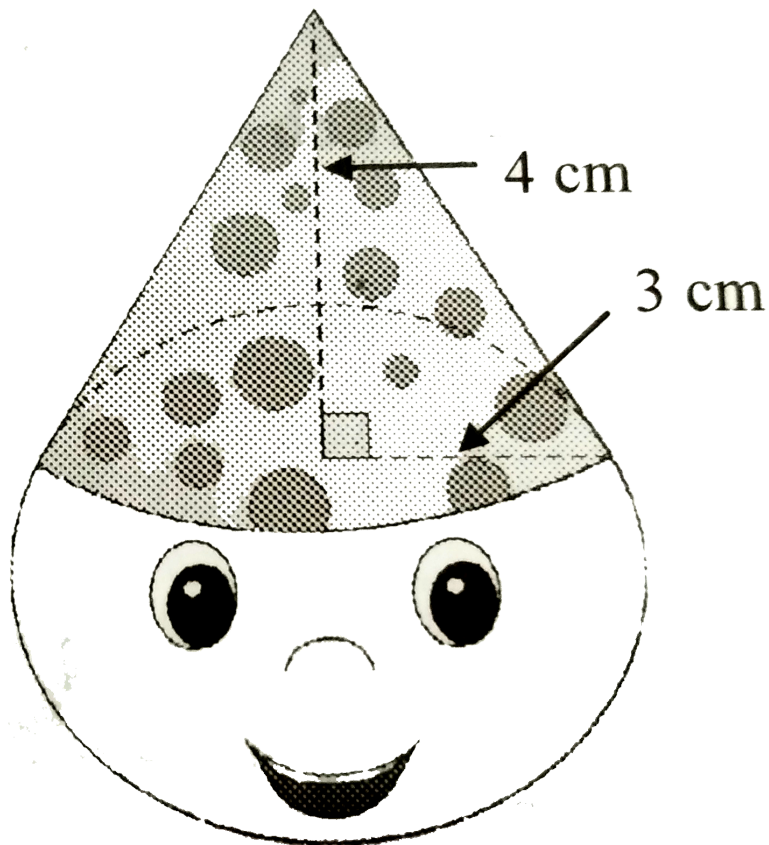
Answer:



Watch Video Solution

2. The given figure shows a toy. Its lower part is a hemisphere and the upper part is a cone. Find the volume and the surface area of the

toy from the measures shown in the figure.



A. $A = 36 - x^2$

B. $A = 36x + x^3$

$$C. A = 36x - x^3$$

$$D. A = 72x - 2x^3$$

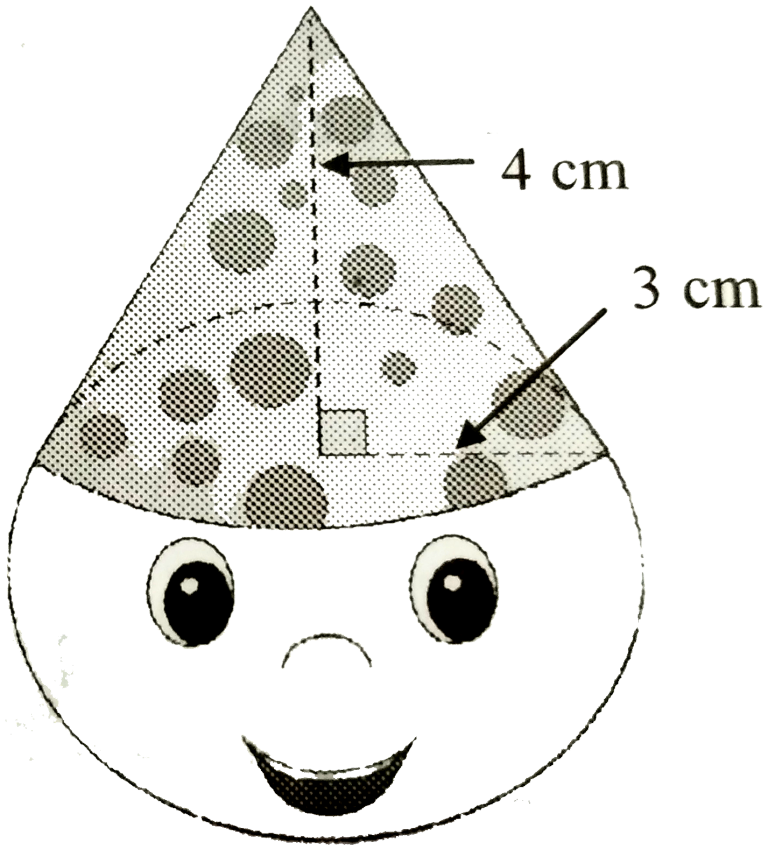
Answer:



Watch Video Solution

3. The given figure shows a toy. Its lower part is a hemisphere and the upper part is a cone. Find the volume and the surface area of the

toy from the measures shown in the figure.



A. 27

B. 135

C. 81

D. 162

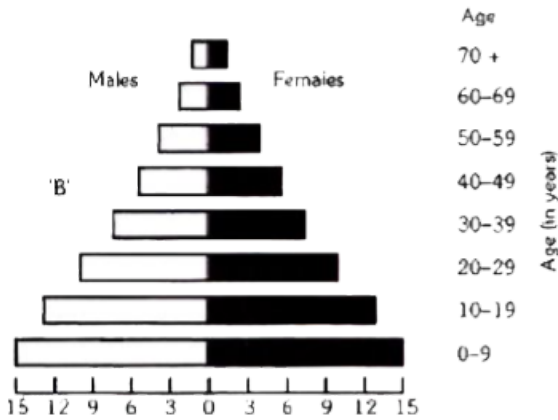
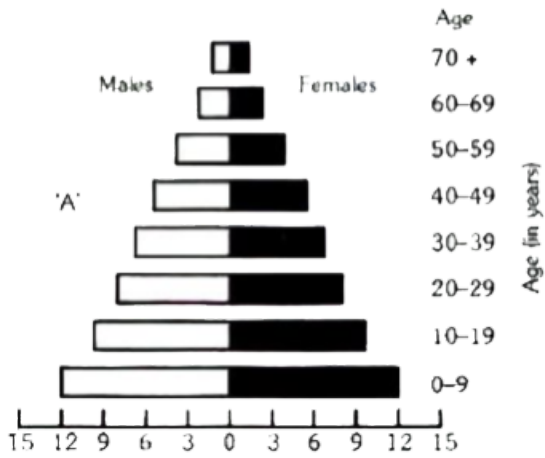
Answer:



Watch Video Solution

4. A country with a high rate of population growth took measures to reduce it. The figure below shows agesex pyramids of populations A and B twenty years apart. Select the correct

interpretation about them:



A. 6

B. 4

C. 3

D. 2

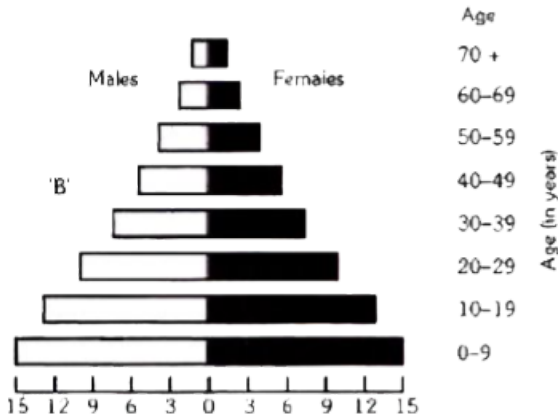
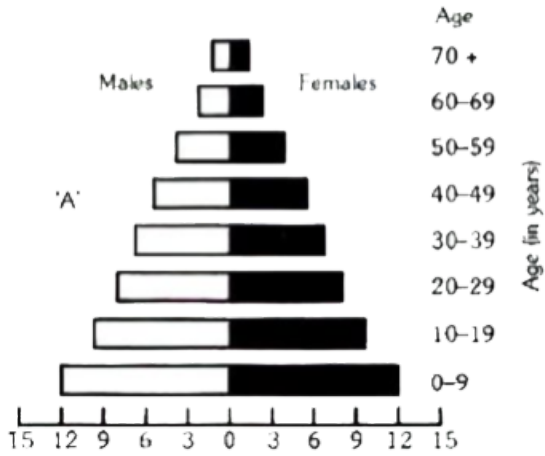
Answer:



Watch Video Solution

5. A country with a high rate of population growth took measures to reduce it. The figure below shows agesex pyramids of populations A and B twenty years apart. Select the correct

interpretation about them:



A. 42 units

B. 40 units

C. 36.5 units

D. 35.6 units

Answer:



Watch Video Solution

6.

Times (in minutes)	70-80	80-90	90-100	100-110	110-120	120-130
Number of drivers	4	10	14	20	24	8

In which interval does the median of the distribution lie?

A. 80-90

B. 90-100

C. 100-110

D. 110-120

Answer:



Watch Video Solution

7.

Times (in minutes)	70-80	80-90	90-100	100-110	110-120	120-130
Number of drivers	4	10	14	20	24	8

In which interval does the mode of the distribution lie?

A. 80-90

B. 90-100

C. 100-110

D. 110-120

Answer:



Watch Video Solution

8.

Times (in minutes)	70-80	80-90	90-100	100-110	110-120	120-130
Number of drivers	4	10	14	20	24	8

The mean time (in minutes) taken to complete

the journey is

A. 104

B. 106

C. 110

D. 112

Answer:



Watch Video Solution

9.

Times (in minutes)	70-80	80-90	90-100	100-110	110-120	120-130
Number of drivers	4	10	14	20	24	8

One driver is chosen at random. The probability that he took 90 minutes or less for the journey is

A. $\frac{7}{40}$

B. $\frac{1}{40}$

C. $\frac{3}{20}$

D. $\frac{7}{25}$

Answer:



Watch Video Solution

10.

Times (in minutes)	70-80	80-90	90-100	100-110	110-120	120-130
Number of drivers	4	10	14	20	24	8

A drivers is chosen at random. The probability that he took more than 120 minutes for the journey, is

A. $\frac{4}{395}$

B. $\frac{62}{395}$

C. $\frac{1}{10}$

D. $\frac{1}{20}$

Answer:



Watch Video Solution

11. Stationary sound 'S' of frequency 334 Hz and a stationary observer 'O' are placed near a reflecting surface moving away from the source with velocity 2 m/s the apparent frequency of the echo of S considering velocity of sound equal to 334 m/s is

` (##TRG_PHY_MCQ_XII_C07_E04_015_Q01.png"
width="80%")>

A. $\frac{2}{1}$

B. $\frac{3}{2}$

C. $\frac{4}{3}$

D. $\frac{2}{3}$

Answer:



Watch Video Solution

12. If $y = \tan^{-1}(\sec x - \tan x)$, then
differentiation of y wrt x is equal to = ?

A. 4.2 sq cm

B. 6.3 sq cm

C. 8.4 sq cm

D. 12.6 sq cm

Answer:



Watch Video Solution

13. Stationary sound 'S' of frequency 334 Hz and a stationary observer 'O' are placed near a reflecting surface moving away from the

source with velocity 2 m/s the apparent frequency of the echo of S considering velocity of sound equal to 334 m/s is

` (##TRG_PHY_MCQ_XII_C07_E04_015_Q01.png" width="80%")>

- A. 7.2 cm
- B. 8.4 cm
- C. 10.2 cm
- D. 10.8 cm

Answer:



14. If $y = \tan^{-1}(\sec x - \tan x)$, then
differentiation of y wrt x is equal to = ?

A. 8.4 sq cm

B. 16.8 sq cm

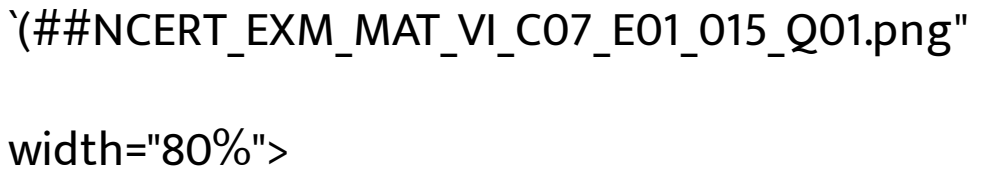
C. 25.2 sq cm

D. 37.8 sq cm

Answer:



15. The perimeter of the triangle shown in figure. is

`###NCERT_EXM_MAT_VI_C07_E01_015_Q01.png" width="80%">

A. 8.4 sq cm

B. 16.8 sq cm

C. 25.2 sq cm

D. 37.8 sq cm

Answer:



Watch Video Solution

16. The diagram shown two arcs, A and B. Arc A is part of the circle with centre O and radius OP . Arc B is part of the circle with centre M and radius PM , where M is the mid-point of PQ .

Show that the area enclosed by the two arcs is

$$\text{equal to } 25\left(\sqrt{3} - \frac{\pi}{6}\right) \text{ cm}^2$$

A. 17.8 cu cm

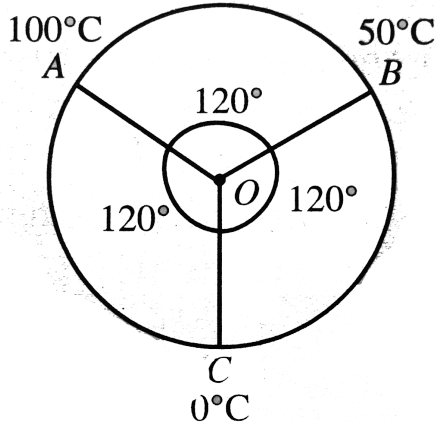
B. 18.7 cu cm

C. 19.8 cu cm

D. 21.2 cu cm

Answer:

 [Watch Video Solution](#)



17.

A circular ring (centre O) of radius a , and of uniform cross section is made up of three

different metallic rods AB, BC and CA (joined together at the points A, B and C in pairs) of thermal conductivityies α_1, α_2 and α_3 respectively (see diagram). The junction A, B and C are maintained at the temperatures $100^\circ C, 50^\circ C$ and $0^\circ C$, respectively. All the rods are of equal lengths and cross sections. Under steady state conditions, assume that no heat is lost from the sides of the rods. Let Q_1, Q_2 and Q_3 be the rates of transmission of heat along the three rods AB, BC and CA. Then

A. 0.2 cu cm

B. 0.7 cu cm

C. 1.8 cu cm

D. 3.2 cu cm

Answer:



Watch Video Solution

18. The diagram shown two arcs, A and B. Arc A is part of the circle with centre O and radius OP . Arc B is part of the circle with centre M and radius PM , where M is the mid-point of PQ .

Show that the area enclosed by the two arcs is

$$\text{equal to } 25\left(\sqrt{3} - \frac{\pi}{6}\right) \text{ cm}^2$$

A. 6.9 cm

B. 5.2 cm

C. 3.5 cm

D. 1.7 cm

Answer:



Watch Video Solution

19. The diagram shown two arcs, A and B. Arc A is part of the circle with centre O and radius OP . Arc B is part of the circle with centre M and radius PM , where M is the mid-point of PQ . Show that the area enclosed by the two arcs is

$$\text{equal to } 25\left(\sqrt{3} - \frac{\pi}{6}\right) \text{ cm}^2$$

A. 9.9 cm

B. 8.2 cm

C. 6.5 cm

D. 4.7 cm

Answer:



Watch Video Solution

20. A particle is projected with velocity v at an angle θ with horizontal. The average angle velocity of the particle from the point of projection to impact equals

A. 11.1 cm

B. 16.5 cm

C. 9.4 cm

D. 8.6 cm

Answer:



Watch Video Solution

Section Iii

1. Find the HCF of 48 and 126.



Watch Video Solution

2. The decimal expansion of the rational number $\frac{83}{2^3 \times 5^4}$ will terminate after how many places of decimals?



[Watch Video Solution](#)

3. Write a pair of equations in variables x and y which is consistent with

(A) unique solution

(B) infinitely many solution



[Watch Video Solution](#)

4. Determine the value (s) of k for which the quadratic equation $4x^2 - 6kx + 9 = 0$ has real and distinct roots



[Watch Video Solution](#)

5. In an AP, if $a = 1$, $a_n = 20$ and $S_n = 399$, then n is equal to



[Watch Video Solution](#)

6. Construct a pair of tangents to a circle of radius 3 cm which are inclined to each other at an angle of 60°



[Watch Video Solution](#)

7. If the two vertices of an equilateral triangle be $(0, 0)$, $(3, \sqrt{3})$, find the third vertex.



[Watch Video Solution](#)

8. Two dice are thrown together. What is the probability of getting a doublet?



Watch Video Solution

Section Iv

1. Prove that :

$$\frac{\cos^2 \theta}{1 - \tan \theta} + \frac{\sin^3 \theta}{\sin \theta - \cos \theta} = 1 + \sin \theta \cos \theta$$



Watch Video Solution

2. If $\cos \theta + \sin \theta = \sqrt{2} \cos \theta$, then prove that

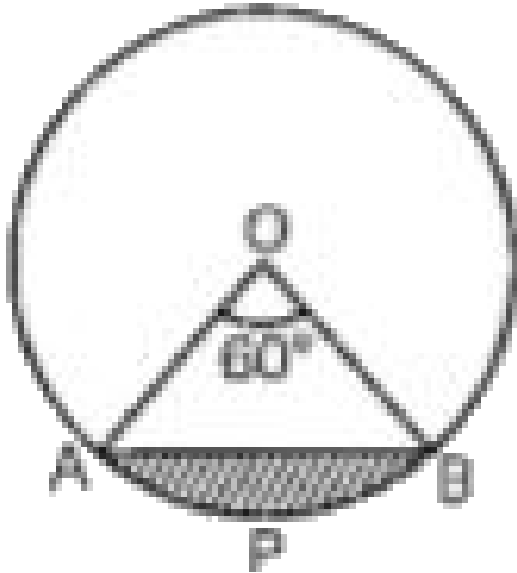
$$\cos \theta - \sin \theta = \sqrt{2} \sin \theta$$



Watch Video Solution

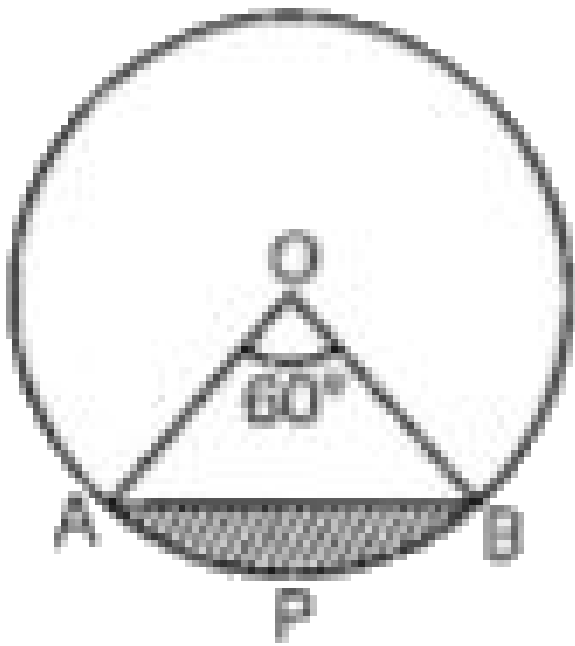
3. In the figure, chord AB subtends an angle of 60° at the centre of the circle of radius 3.5 cm. Find the (a) length of the arc APB (b) the area of the sector AOB (C) area of the minor

segment (Shaded region) (use $\sqrt{3} = 1.73$)



[Watch Video Solution](#)

4. In the figure, radius of the circle is 14 cm, then the shaded area is



[Watch Video Solution](#)

5. If $\sin \theta + \cos \theta = p$ and $\sec \theta + \operatorname{cosec} \theta = q$

then prove that $q(p^2 - 1) = 2p$.





[Watch Video Solution](#)

6. $A(4, 2)$, $B(6, 5)$ and $C(1, 4)$ are the vertices of ABC . The median from A meets BC in D . Find the coordinates of the point D .



[Watch Video Solution](#)

7. In a school students thought of planting trees in and around the school to reduce air pollution. It was decided that the number of

trees, that each section of each class will plant, will be the same as the class, in which they are studying, e.g.,



[Watch Video Solution](#)

8. If the HCF of 657 and 963 is expressible in the form $657x + 963y - 15$, find x .



[Watch Video Solution](#)

9. One card is drawn at from a pack of 52 cards. Find the probability that the card drawn is:
red and a queen.



[Watch Video Solution](#)

10. In figure ABC and DBC are two triangles on the same base BC. If AD intersects BC at O,

show that $\frac{ar(ABC)}{ar(DBC)} = \frac{AO}{DO}$.



[Watch Video Solution](#)

11. Prove that the line segments joining the mid-points of the sides of a triangle form four triangles, each of which is similar to the original triangle.



Watch Video Solution

12. Verify that 2,1,1 are the zeros of the polynomial $x^3 - 4x^2 + 5x - 2$. Also, verify the relationship between the zeroes and the coefficients



[Watch Video Solution](#)

13. Looking from the top of a 20 m high building, the angle of elevation of the top of a tower is 60° and the angle of depression of its bottom is 30° . What is the height of the tower?



[Watch Video Solution](#)