



# MATHS

## BOOKS - AGRAWAL PUBLICATION

### Sample paper 8

#### Exercise

1. What is the HCF of 40 and 54 ?



[Watch Video Solution](#)

2. Find the value of  $k$  for which the polynomial  $21x^2 - 3kx + 7$  has real roots.



[Watch Video Solution](#)

3. If the value of 'x' in the equation  $2x + 3y = 13$  is 2, then find the corresponding value of y.



[Watch Video Solution](#)

4. Find the ratio in which x-axis divides the join of points  $(2, -3)$  and  $(5, 6)$  internally.



[Watch Video Solution](#)

5. The coordinates of the point P dividing the line segment joining the points  $A(1, 3)$  and  $B(4, 6)$  in the ratio  $2:1$  is



[Watch Video Solution](#)

6.

If

$\Delta ABC \sim \Delta DEF$  and  $AB = DE$ ,  $BC = 8\text{cm}$ ,

then the value of EF ?



[Watch Video Solution](#)

7. ABC is a right triangle, right angled at C and

$AB = \sqrt{2}BC$ . Then, find  $\angle ABC$ .



[Watch Video Solution](#)

**8.** The ratio of the height of a tower and the length of its shadow is  $\sqrt{3}:1$ . Find the angle of elevation of the Sun.



**Watch Video Solution**

**9.** Find the  $10^{\text{th}}$  term of the AP: 2, 7, 12, ...



**Watch Video Solution**

**10.** Find the sum of the first 10 multiples of 2.



[Watch Video Solution](#)

**11.** Write a quadratic polynomial whose zero are 2 and -5.



[Watch Video Solution](#)

**12.** The sum of the digits of a 2-digit number is 10. A number is selected at random. Find the probability of the chosen number to be divisible by 3.





[Watch Video Solution](#)

**13.** An unbiased dice is rolled once. What is the probability of getting an even prime number?



[Watch Video Solution](#)

**14.** If  $\theta$  is the angle (in degrees) of a sector of a circle of radius  $r$ , then area of sector is



[Watch Video Solution](#)

**15.** A cylindrical pencil sharpens at one edge is the combination of



**Watch Video Solution**

**16.** If one zero of  $p(y) = 4y^2 - 8ky - 9$  is negative of other, then find the value of K.



**Watch Video Solution**

**17.** Find the value of k if the given system of equations  $5x + ky = -7$  and  $x + 2y = 3$  is



inconsistent :



[Watch Video Solution](#)

**18.** If  $\triangle ABC \sim \triangle PQR$  , perimeter of  $\triangle ABC = 32\text{cm}$ , perimeter of  $\triangle PQR = 48\text{ cm}$  and  $PR = 6\text{ cm}$ , then find the length of  $AC$ .

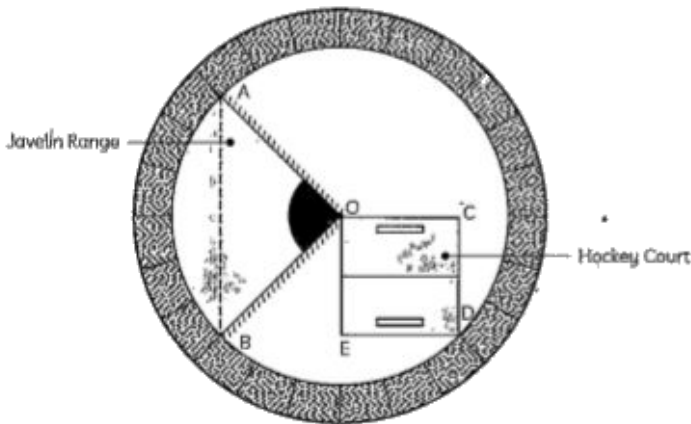


[Watch Video Solution](#)

**19.** Jawaharlal Nehru Stadium in New Delhi is conducting the annual sports competition

soon. The curator of the stadium is tasked with preparing the grounds for various sports as per the technical requirements of sports invigilator.

The engineer assigned to assist the curator is tasked with figuring out the dimensions for carving out some areas allotted for a 'hockey court' and a 'javelin range', as shown in the figure below.



The shapes of the 'hockey court' and the 'javelin range' are square and triangle respectively. Both of the courts have a

common edge that touches the centre of stadium. The construction of the javelin range is such that the angle to centre is  $90^\circ$ . The radius of the stadium is 200 metres.

The area (in sq m) allotted to 'javelin" range' is

A. 11400

B. 20000

C. 31400

D. 40000

**Answer:**

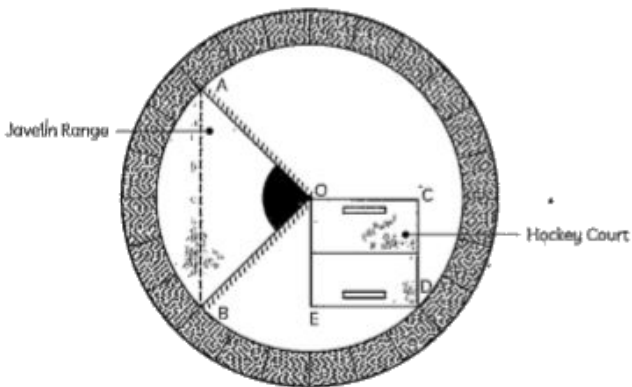


Watch Video Solution

**20.** Jawaharlal Nehru Stadium in New Delhi is conducting the annual sports competition soon. The curator of the stadium is tasked with preparing the grounds for various sports as per the technical requirements of sports invigilator.

The engineer assigned to assist the curator is tasked with figuring out the dimensions for carving out some areas allotted for a 'hockey court' and a 'javelin range', as shown in the

figure below.



The shapes of the 'hockey court' and the 'javelin range' are square and triangle

respectively. Both of the courts have a common edge that touches the centre of stadium. The construction of the javelin range is such that the angle to centre is  $90^\circ$ . The radius of the stadium is 200 metres.

On the basis of the above information, answer any four of the following question:

The area (in sqm) allotted to 'Hockey court' is

A. 11400

B. 20000

C. 31400

D. 40000

**Answer:**

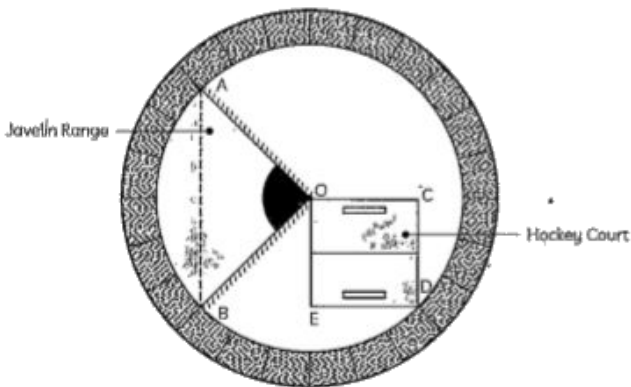


**Watch Video Solution**

**21.** Jawaharlal Nehru Stadium in New Delhi is conducting the annual sports competition soon. The curator of the stadium is tasked with preparing the grounds for various sports as per the technical requirements of sports invigilator.



The engineer assigned to assist the curator is tasked with figuring out the dimensions for carving out some areas allotted for a 'hockey court' and a 'javelin range', as shown in the figure below.



The shapes of the 'hockey court' and the 'javelin range' are square and triangle respectively. Both of the courts have a

common edge that touches the centre of stadium. The construction of the javelin range is such that the angle to centre is  $90^\circ$ . The radius of the stadium is 200 metres.

If the team of the curators managing the stadium, likes to allot space for some more sports, how much area (in sq m) is available to them?

A. 125600

B. 105600

C. 85600

D. 58600

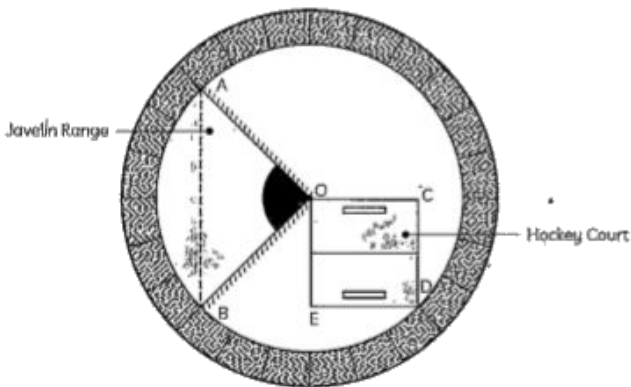
**Answer:**



**Watch Video Solution**

**22.** Jawaharlal Nehru Stadium in New Delhi is conducting the annual sports competition soon. The curator of the stadium is tasked with preparing the grounds for various sports as per the technical requirements of sports invigilator.

The engineer assigned to assist the curator is tasked with figuring out the dimensions for carving out some areas allotted for a 'hockey court' and a 'javelin range', as shown in the figure below.



The shapes of the 'hockey court' and the 'javelin range' are square and triangle respectively. Both of the courts have a

common edge that touches the centre of stadium. The construction of the javelin range is such that the angle to centre is  $90^\circ$ . The radius of the stadium is 200 metres.

If the boundaries of the hockey court and javelin range are to be fenced, then the total length (in m) of the fence required is

A.  $100(2 + 3\sqrt{2})$

B.  $100(2 + 5\sqrt{2})$

C.  $200(2 + 5\sqrt{2})$

$$D. 200(2 + 3\sqrt{2})$$

**Answer:**

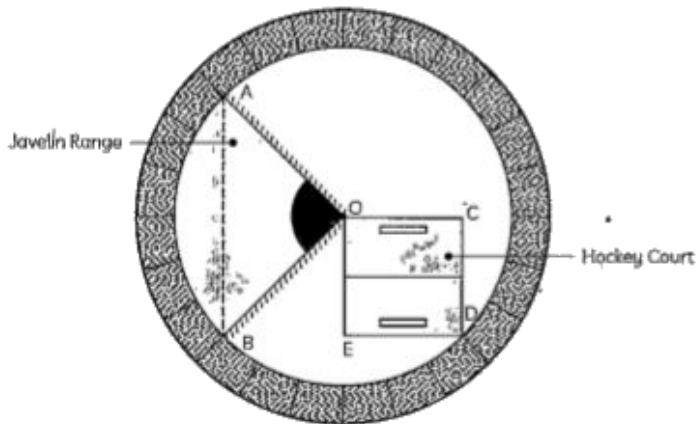


**Watch Video Solution**

**23.** Jawaharlal Nehru Stadium in New Delhi is conducting the annual sports competition soon. The curator of the stadium is tasked with preparing the grounds for various sports as per the technical requirements of sports invigilator.



The engineer assigned to assist the curator is tasked with figuring out the dimensions for carving out some areas allotted for a 'hockey court' and a 'javelin range', as shown in the figure below.



The shapes of the 'hockey court' and the 'javelin range' are square and triangle respectively. Both of the courts have a

common edge that touches the centre of stadium. The construction of the javelin range is such that the angle to centre is  $90^\circ$ . The radius of the stadium is 200 metres.

If the cost of fencing is Rs 12 per metre, then the total cost of fencing is

A.  $Rs1200(2 + 3\sqrt{2})$

B.  $Rs1200(2 + 5\sqrt{2})$

C.  $Rs2400(2 + 5\sqrt{2})$

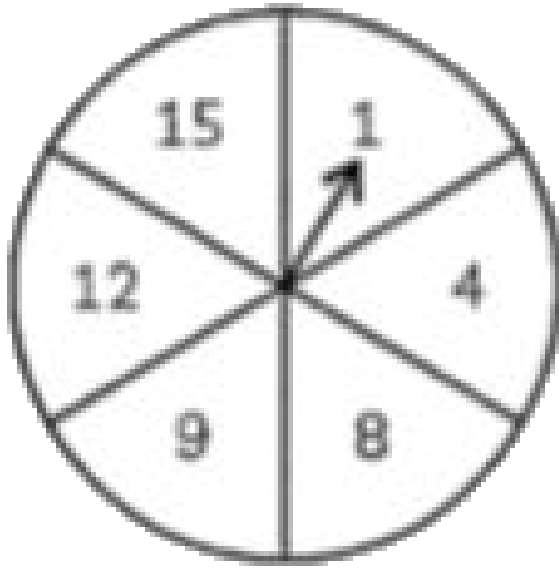
D.  $Rs2400(2 + 3\sqrt{2})$

**Answer:**



**Watch Video Solution**

**24.** A game at a stall in Diwali fare involves using a spinner first as a pre-cursor to complete the game with certain rules. If the spinner stops at a particular number, then the player is allowed to roll a 6. faced unbiased die,



What is the probability of getting an odd number on the spinner?

A.  $\frac{1}{4}$

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

C.  $\frac{1}{8}$

D.  $\frac{1}{16}$

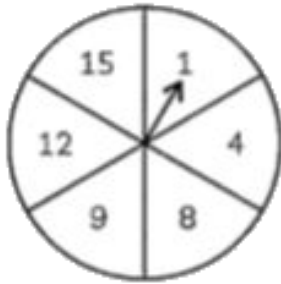
**Answer:**



**Watch Video Solution**

**25.** A game at a stall in Diwali fare involves using a spinner first as a pre-cursor to complete the game with certain rules. If the spinner stops at a particular number, then the player is allowed to roll a 6. faced unbiased

die,



If getting an even number on the spinner allows a player to roll the die, then the probability of his rolling the die is

- A.  $\frac{1}{4}$
- B.  $\frac{1}{2}$
- C.  $\frac{1}{8}$

D.  $\frac{1}{16}$

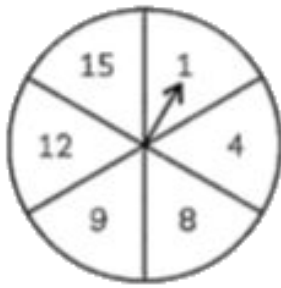
**Answer:**



**Watch Video Solution**

**26.** A game at a stall in Diwali fare involves using a spinner first as a pre-cursor to complete the game with certain rules. If the spinner stops at a particular number, then the player is allowed to roll a 6. faced unbiased die,





If the player is allowed to roll the die and getting a prime number entitles him to get prize, then the probability of his winning the prize is

A.  $\frac{1}{4}$

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

C.  $\frac{1}{3}$

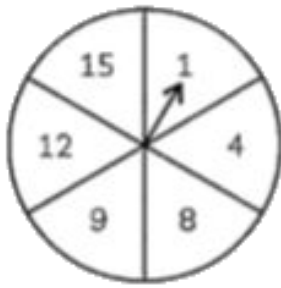
D.  $\frac{1}{6}$

**Answer:**



**Watch Video Solution**

**27.** A game at a stall in Diwali fare involves using a spinner first as a pre-cursor to complete the game with certain rules. If the spinner stops at a particular number, then the player is allowed to roll a 6. faced unbiased die,



If getting a square number on the spinner allows a player to roll the die, then the probability of his rolling the die is

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

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

C.  $\frac{1}{3}$

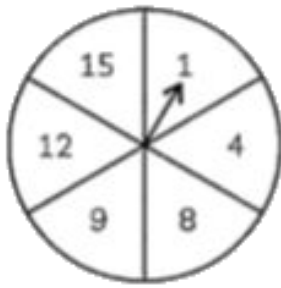
D.  $\frac{2}{3}$

**Answer:**



**Watch Video Solution**

**28.** A game at a stall in Diwali fare involves using a spinner first as a pre-cursor to complete the game with certain rules. If the spinner stops at a particular number, then the player is allowed to roll a 6. faced unbiased die,



If the player is allowed to roll the die and getting a number greater than 5 erititles him to get prize, then the probability of his winning the prize'is

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

B.  $\frac{1}{6}$

C.  $\frac{1}{3}$

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

**Answer:**



**Watch Video Solution**

**29.** Radio towers are typically tall structures designed to support antennas for tele communications and broadcasting, including television. There are 2 main types: guyed and self-supporting structures.

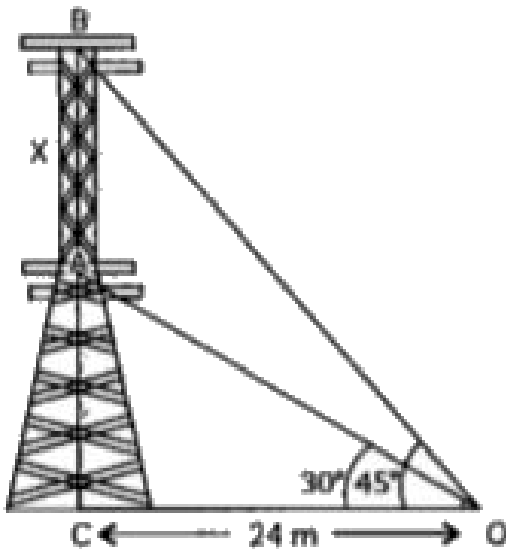
They are among the tallest human-made

structures. Masts are often named after the broadcasting organizations that originally built them or currently use them.



On a similar concept, a radio - station tower

was built in two sections A and B. From a point 24 m from the base of the tower, the angle of elevation of the top of section A is  $30^\circ$  and the angle of elevation of the top of section B is  $45^\circ$ ).



The height of the section A is

A. 13.84 m



B. 14.6 m

C. 16.7 m

D. 34.6 m

**Answer:**



**Watch Video Solution**

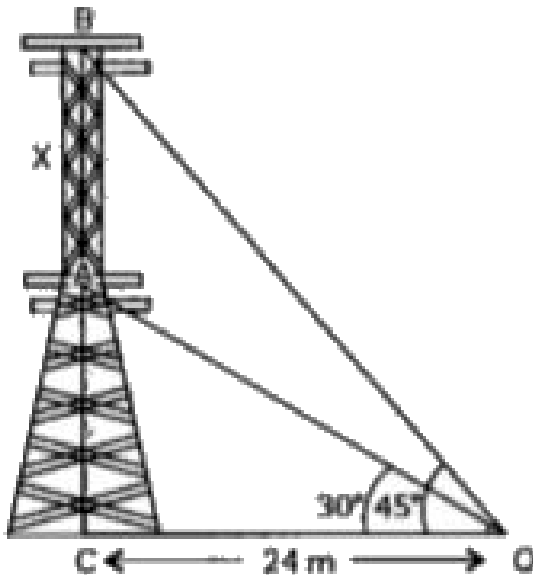
**30.** Radio towers are typically tall structures designed to support antennas for tele communications and broadcasting, including television. There are 2 main types: guyed and

self-supporting structures.

They are among the tallest human-made structures. Masts are often named after the broadcasting organizations that originally built them or currently use them.



On a similar concept, a radio - station tower was built in two sections A and B. From a point 24 m from the base of the tower, the angle of elevation of the top of section A is  $30^\circ$  and the angle of elevation of the top of section B is  $45^\circ$  ).



The height of the section B is

A. 5.4 m

B. 3.3 m

C. 6.16 m

D. 10.16m

**Answer:**



**Watch Video Solution**

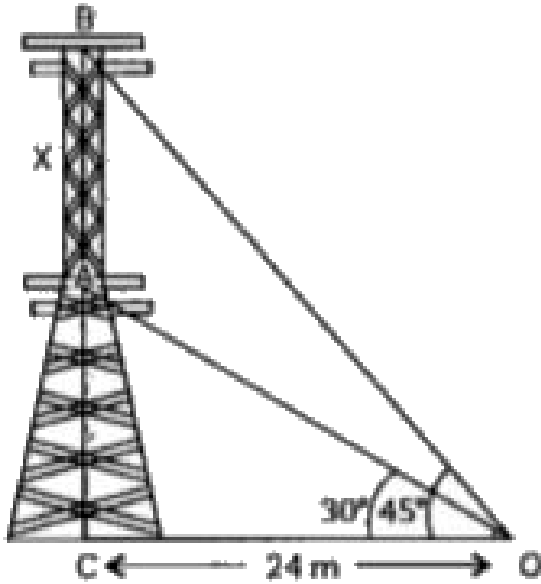
**31.** Radio towers are typically tall structures designed to support antennas for tele communications and broadcasting, including television. There are 2 main types: guyed and self-supporting structures.

They are among the tallest human-made structures. Masts are often named after the broadcasting organizations that originally built them or currently use them.



On a similar concept, a radio - station tower was built in two sections A and B. From a point 24 m from the base of the tower, the angle of elevation of the top of section A is  $30^\circ$  and the angle of elevation of the top of section B

is  $45^\circ$ ).



The height of the tower is

A. 17.9 m

B. 24m

C. 31.6 m

D. 20 m

**Answer:**



**Watch Video Solution**

**32.** Radio towers are typically tall structures designed to support antennas for tele communications and broadcasting, including television. There are 2 main types: guyed and self-supporting structures.

They are among the tallest human-made

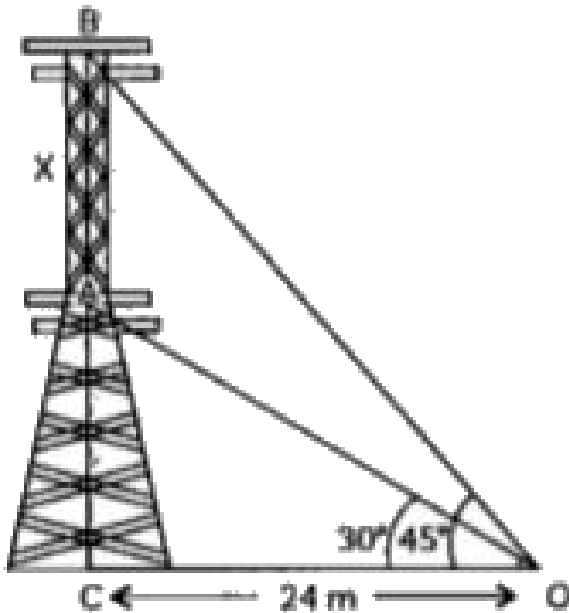


structures. Mosts are often named after the broadcasting organizations that originally built them or currently use them.



On a similar concept, a radio - station tower was built in two sections A and B. From a point

24 m from the base of the tower, the angle of elevation of the top of section A is  $30^\circ$  and the angle of elevation of the top of section B is  $45^\circ$ ).



On the basis of the above information, answer any four of the following question:

The length of the wire structure from the point to the top of section A is

A. 11.8 m

B. 14.6 m

C. 27.7m

D. 33.84 m

**Answer:**



**Watch Video Solution**

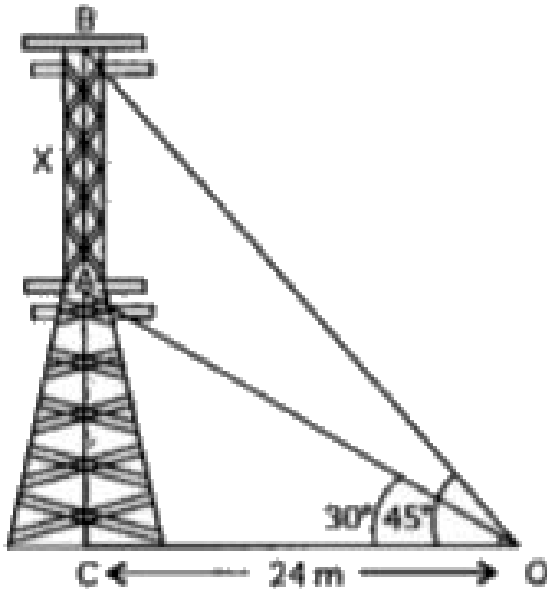
**33.** Radio towers are typically tall structures designed to support antennas for tele communications and broadcasting, including television. There are 2 main types: guyed and self-supporting structures.

They are among the tallest human-made structures. Masts are often named after the broadcasting organizations that originally built them or currently use them.



On a similar concept, a radio - station tower was built in two sections A and B. From a point 24 m from the base of the tower, the angle of elevation of the top of section A is  $30^\circ$  and the angle of elevation of the top of section B

is  $45^\circ$ ).



On the basis of the above information, answer any four of the following question:

The length of the wire structure from the point o to the top of section B is

A. 11.8 m

B. 14.6 m

C. 27.7 m

D. 33.84 m]

**Answer:**



**Watch Video Solution**

**34.** Express 0.3528 in the form  $\frac{p}{2^m 5^n}$  and write the values of p, m and n.



**Watch Video Solution**

**35.** If  $\text{HCF}(150, 210) = 30$ , then find  $\text{LCM}(150, 210)$ .



**Watch Video Solution**

**36.** Find the value of  $x$  for which  $2x$ ,  $(x + 10)$  and  $(3x + 2)$  are three consecutive terms of an A.P.



**Watch Video Solution**



**37.** If the first term of an A.P. is  $p$  and its common difference is  $q$ . then find its 6th term.



**Watch Video Solution**

**38.** Find a relation between  $x$  and  $y$  such that the point  $(x, y)$  is equidistant from the point  $(3, 6)$  and  $(-3, 4)$ .



**Watch Video Solution**

**39.** The shadow of a 5-m-long stick is 2m long.

At the same time, the length of the shadow of

a  $12.5m$  high tree is



**Watch Video Solution**

**40.** The area of a circle is 154 sq. cm. Find its circumference.



**Watch Video Solution**

**41.** A bag contains 3 red and 5 blue balls. A ball is drawn at random from the bag. What is the probability that the ball drawn is:  
red?



**Watch Video Solution**

**42.** A bag contains 3 red and 5 blue balls. A ball is drawn at random from the bag. What is the probability that the ball drawn is yellow ?



**Watch Video Solution**

**43.** Find the greatest 4-digit number which is divisible by 15, 24 and 36.



**Watch Video Solution**

**44.** Determine the AP whose 3rd term is 5 and the  $7^{th}$  term is 9.



**Watch Video Solution**

45. In the given figure , DEFG is a square and

$$\angle BAC = 90^\circ$$

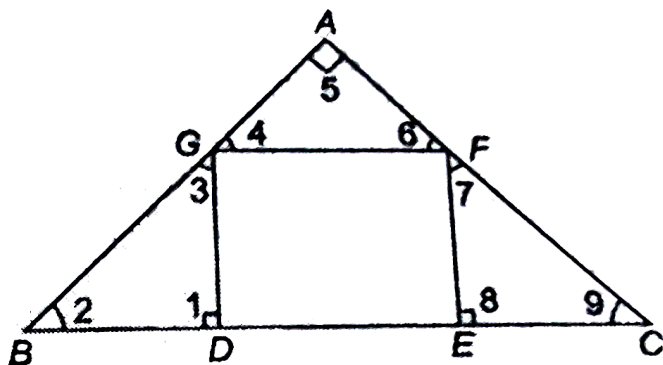
prove that

(i)  $\triangle AGF \sim \triangle DBG$

(ii)  $\triangle AGF \sim \triangle EFC$

(iii)  $\triangle DBG \sim \triangle EFC$

(iv)  $DE^2 = BD \times EC$



Watch Video Solution

**46.** Draw a line segment of length 5.6 cm and divide it in the ratio 4:3. Measure the two parts.

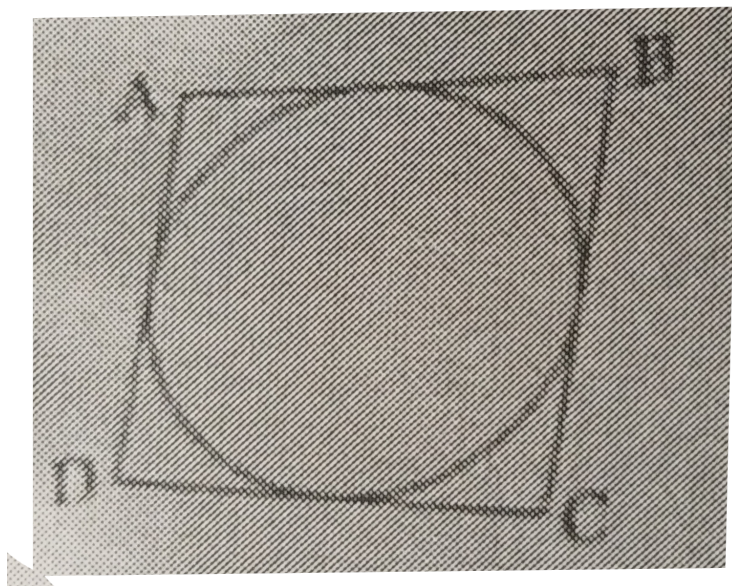


**Watch Video Solution**

**47.** In Figure, a quadrilateral ABCD is drawn to circumscribe a circle .

Prove that

$$AB + CD = BC + AD$$



[Watch Video Solution](#)

**48.** A cubical block of side 7 cm is surmounted by a hemisphere. What is the greatest

diameter of the hemisphere can have? Find the total surface area of the solid.



[Watch Video Solution](#)

49. Solve for  $x$  :

$$\frac{1}{x+4} - \frac{1}{x-7} = \frac{11}{30}, x \neq 4, 7$$



[Watch Video Solution](#)

50. Using the quadratic formula, solve for  $x$ :

$$3x^2 + 2\sqrt{5}x - 5 = 0$$





[Watch Video Solution](#)

**51.** State and prove the Pythagoras theorem.



[Watch Video Solution](#)

**52.** The angle of elevation of the top of a tower from a point on the ground, which is 30m away from the foot of the tower, is  $30^\circ$ . Find the height of the tower.



[Watch Video Solution](#)

**53.** After how many places will the decimal expansion of  $\frac{189}{125}$  terminate?



**Watch Video Solution**

**54.** Insert a rational and irrational number between 2 and 3



**Watch Video Solution**

**55.** Find the zeros of the polynomial  $4x^2 - 12x + 9$ .



**Watch Video Solution**

**56.** If  $x = a, y = b$  is the solution of the equations  $x - y = 2$  and  $x + y = 4$ , then find the values of  $a$  and  $b$ .



**Watch Video Solution**

57. Find discriminant of the quadratic equation  $2x^2 + 4x - 7 = 0$



[Watch Video Solution](#)

58. Find the roots of quadratic equation  $x^2 - 4x + 2$ .



[Watch Video Solution](#)

59. If  $S_n = 5n^2 + 3n$ , then find its  $n^{\text{th}}$  term.



[Watch Video Solution](#)

**60.** In an A.P.,  $a=-6$  and  $d = 2$ . Find the sum of its first 20 terms.



[Watch Video Solution](#)

**61.** Write the relationship between the coefficients, if the following pair of equations is inconsistent.

$$ax + by + c = 0,$$

$$a'x + b'y + c' = 0$$



[Watch Video Solution](#)

**62.** In a  $\triangle ABC$ , right-angled at B, if  $AB : AC = 1:2$ , then find the value of

$$\frac{2 \tan A}{1 + \tan^2 A}.$$



[Watch Video Solution](#)

**63.** If  $\tan \theta + \cot \theta = 2$  then the value of  $\tan^2 \theta + \cot^2 \theta$  is



**Watch Video Solution**

**64.** If  $\tan A = 1$  ( $0^\circ < A < 90^\circ$ ) and  $\cos B = \frac{1}{\sqrt{2}}$  ( $0^\circ < B < 90^\circ$ ), then find the value of  $\cos (A + B)$ .



**Watch Video Solution**

65. Evaluate :  $\sin^2 60^\circ + 2\tan 45^\circ - \cos^2 30^\circ$



[Watch Video Solution](#)

66. What would be the area of a circle whose circumference is 22 cms. ?



[Watch Video Solution](#)

67. The volume of two sphere are in the ratio 8:27. The ratio of their surface area is :





[Watch Video Solution](#)

**68.** Find the class-marks of the class interval 10-25.



[Watch Video Solution](#)

**69.** One card is drawn at from a pack of 52 cards. Find the probability that the card drawn is:  
either red or a queen.





[Watch Video Solution](#)

70. How many face cards are there in a pack of 52 cards?



[Watch Video Solution](#)

71. Determine the upper limit of the modal class of the following frequency distribution:

Class	0-5	6-11	12-17	18-23	24-29
Frequency	13	10	15	8	11



[Watch Video Solution](#)

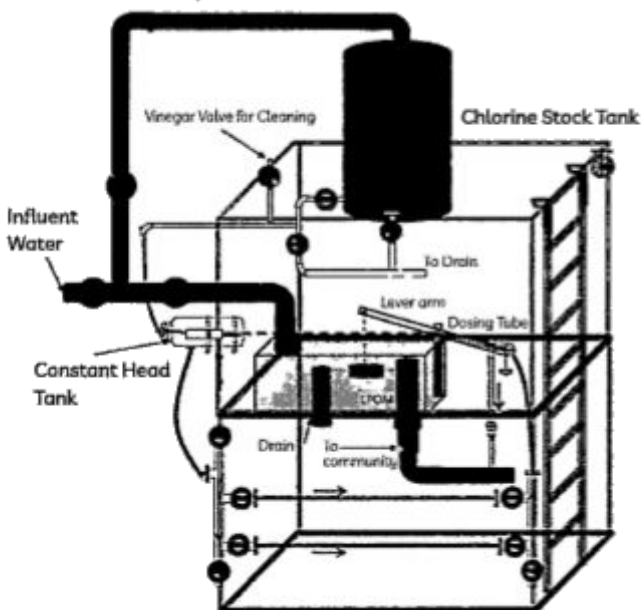
**72.** Empirical relationship between the three measures of central tendency is



**Watch Video Solution**

**73.** Selvi is setting up a water purifier system in her house which includes setting up an overhead tank in the shape of a right circular cylinder. This is filled by pumping water from a sump (underground tank) which is in the shape of a cuboid.

The underground water tank (sump) is a sturdy single moulded piece built to withstand underground pressure and is available in the storage capacity of 2000 L.

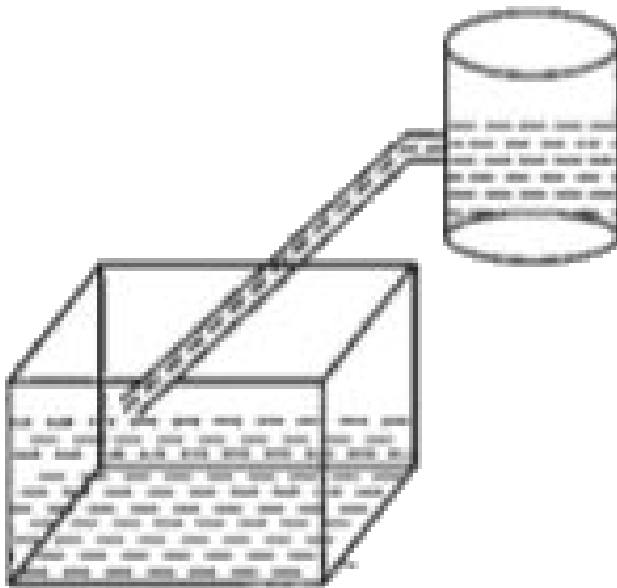


These, along with hassle-free installation and minimum maintenance needs make it the ideal water storage solution.

Dimensions (sump): 1.57 m × 1.44 m × 95 cm.

Dimensions (overhead tank):

Radius 60 cm and Height 95 cm



Water flow conditions at the required overload capacity should be checked for critical pressure drop to ensure that valves are

adequately sized.

On the basis of the above information, answer the following questions:

The ratio of the capacity of the sump to the capacity of the overhead tank is

A. 1 : 2

B. 2 : 1

C. 1 : 4

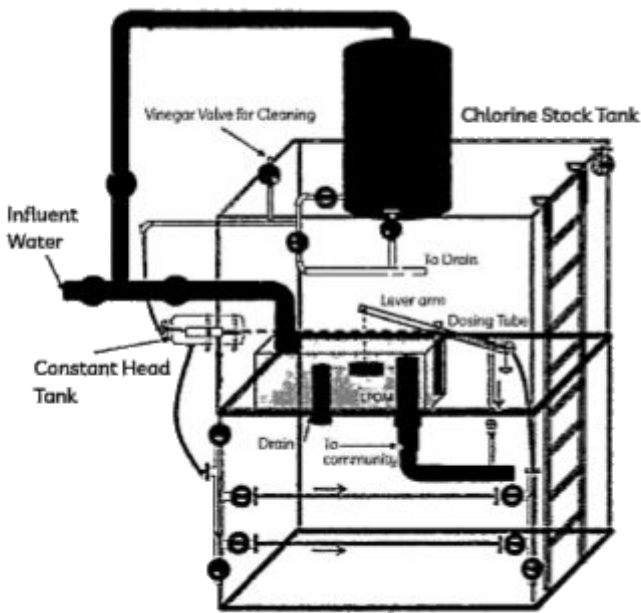
D. 4 : 1

**Answer:**



**74.** Selvi is setting up a water purifier system in her house which includes setting up an overhead tank in the shape of a right circular cylinder. This is filled by pumping water from a sump (underground tank) which is in the shape of a cuboid.

The underground water tank (sump) is a sturdy single moulded piece built to withstand underground pressure and is available in the storage capacity of 2000 L.



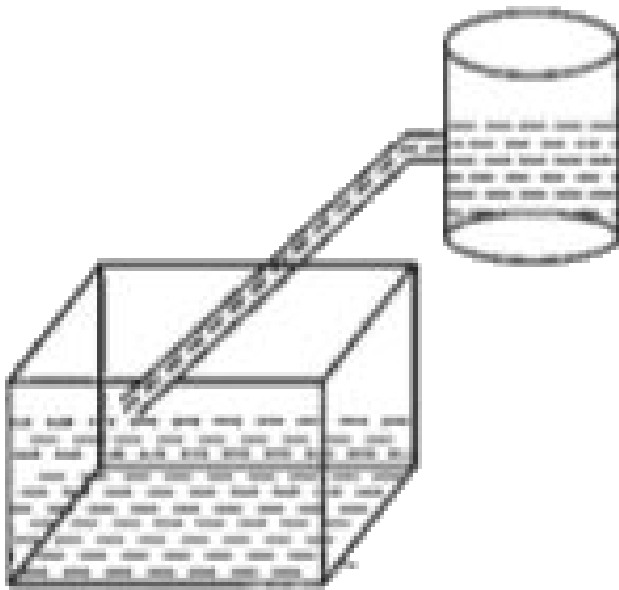
These, along with hassle-free installation and minimum maintenance needs make it the ideal water storage solution.

Dimensions (sump): 1.57 m × 1.44 m × 95 cm.

Dimensions (overhead tank):

Radius 60 cm and Height 95 cm





Water flow conditions at the required overload capacity should be checked for critical pressure drop to ensure that valves are adequately sized.

On the basis of the above information, answer the following questions:

If overhead tank need to be painted to save it

from corrosion, how much area need to be painted?

A. 2.92 sq m

B. 1.13 sq m

C. 4.71 sq m

D. 3.58 sq m

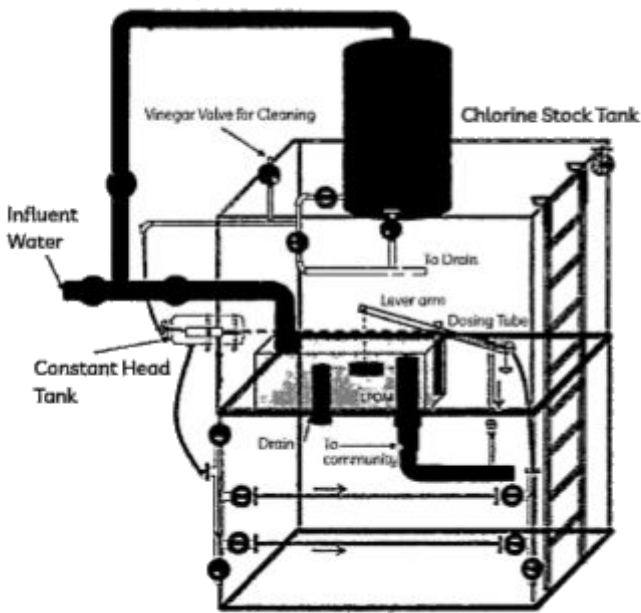
**Answer:**



**Watch Video Solution**

**75.** Selvi is setting up a water purifier system in her house which includes setting up an overhead tank in the shape of a right circular cylinder. This is filled by pumping water from a sump (underground tank) which is in the shape of a cuboid.

The underground water tank (sump) is a sturdy single moulded piece built to withstand underground pressure and is available in the storage capacity of 2000 L.

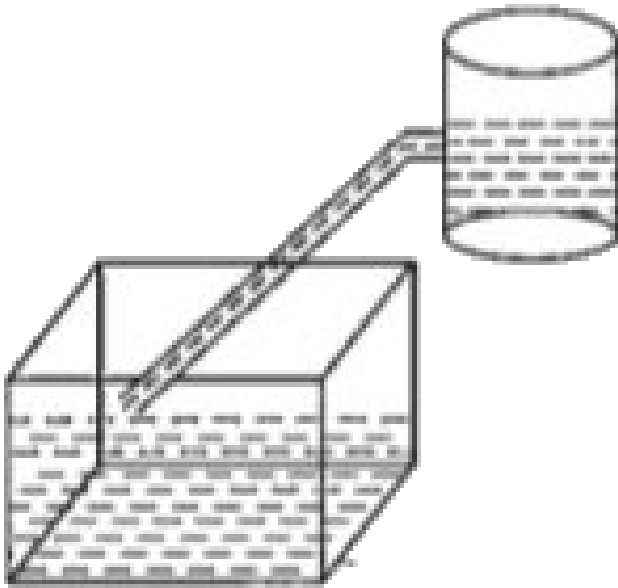


These, along with hassle-free installation and minimum maintenance needs make it the ideal water storage solution.

Dimensions (sump): 1.57 m × 1.44 m × 95 cm.

Dimensions (overhead tank):

Radius 60 cm and Height 95 cm



Water flow conditions at the required overload capacity should be checked for critical pressure drop to ensure that valves are adequately sized.

The capacity (in litres) of the overhead tank is

A. 1047 litres

B. 1074 litres

C. 1205 litres

D. 1207 litres

**Answer:**

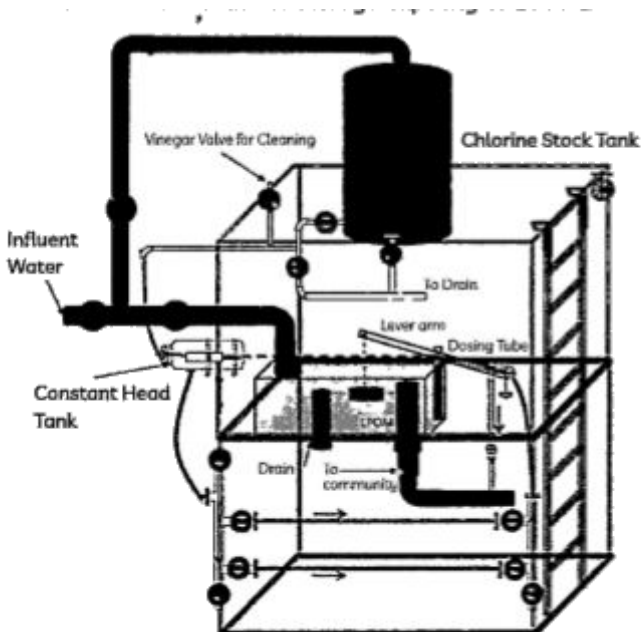


**Watch Video Solution**

**76.** Selvi is setting up a water purifier system in her house which includes setting up an overhead tank in the shape of a right circular

cylinder. This is filled by pumping water from a sump (underground tank) which is in the shape of a cuboid.

The underground water tank (sump) is a sturdy single moulded piece built to withstand underground pressure and is available in the storage capacity of 2000 L.

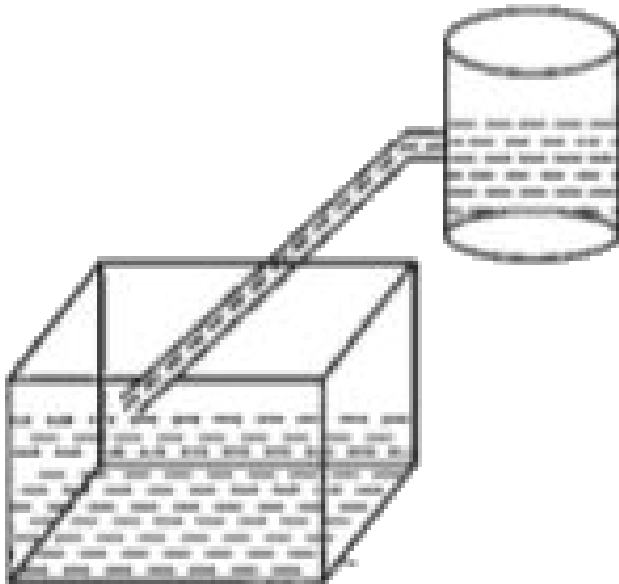


These, along with hassle-free installation and minimum maintenance needs make it the ideal water storage solution.

Dimensions (sump): 1.57 m × 1.44 m × 95 cm.

Dimensions (overhead tank):

Radius 60 cm and Height 95 cm





Water flow conditions at the required overload capacity should be checked for critical pressure drop to ensure that valves are adequately sized.

On the basis of the above information, answer the following questions:

If water is filled in the overhead tank at the rate of 20 litre per minute the tank will be completely filled in how many time?

A. 45 minutes

B. 48 minutes

C. 54minutes

D. 60 minutes

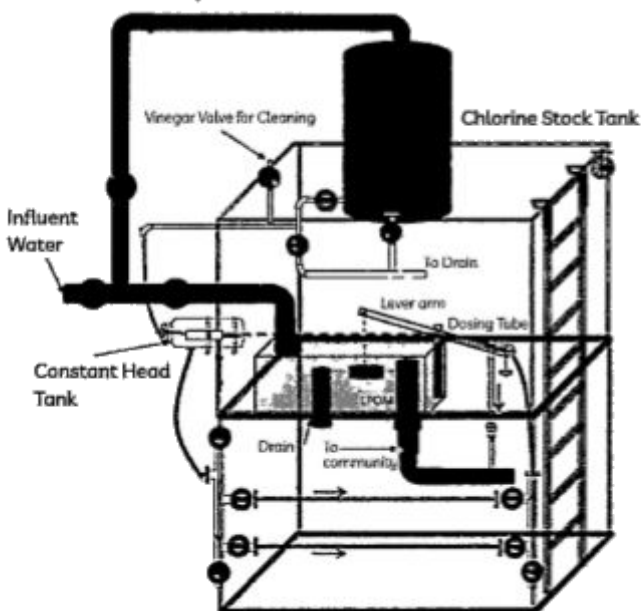
**Answer:**



**Watch Video Solution**

**77.** Selvi is setting up a water purifier system in her house which includes setting up an overhead tank in the shape of a right circular cylinder. This is filled by pumping water from a sump (underground tank) which is in the shape of a cuboid.

The underground water tank (sump) is a sturdy single moulded piece built to withstand underground pressure and is available in the storage capacity of 2000 L.

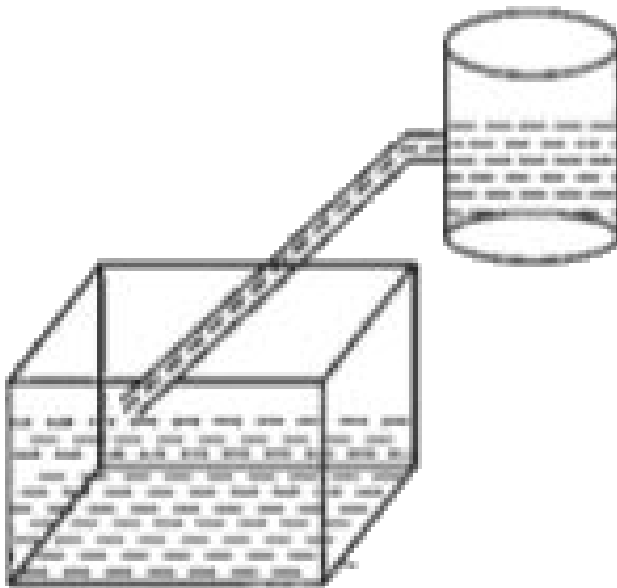


These, along with hassle-free installation and minimum maintenance needs make it the ideal water storage solution.

Dimensions (sump): 1.57 m × 1.44 m × 95 cm.

Dimensions (overhead tank):

Radius 60 cm and Height 95 cm



Water flow conditions at the required overload capacity should be checked for critical pressure drop to ensure that valves are

adequately sized.

On the basis of the above information, answer the following questions:

If the amount of water in the sump, at an instant, is 1500 litres, then the water level in the sump at that instant is

A. 66.3 cm

B. 60.3 cm

C. 72.4 cm

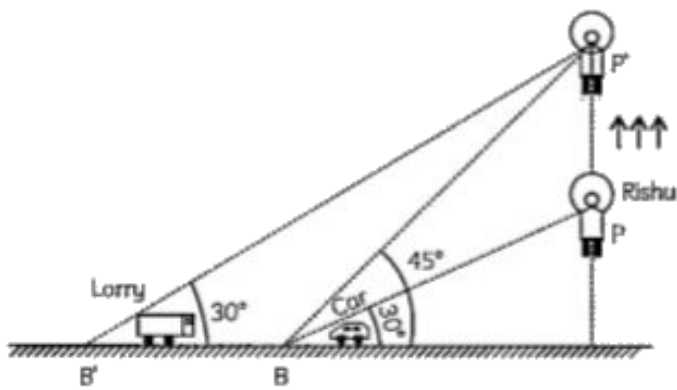
D. 60.9 cm

**Answer:**



Watch Video Solution

**78.** Rishu is riding in a hot air balloon. After reaching a point P, he spots a car parked at A on the ground at an angle of depression of  $30^\circ$ . The balloon rises further by 50 metres and now he spots the same car at an angle of depression of  $45^\circ$  and a lorry parked at B' at an angle of depression of  $30^\circ$ . (Use  $\sqrt{3} = 1.73$ )



The measurement of Rishu facing vertically is the height. Distance is defined as the measurement of car/lorry from a point in a horizontal direction. If an imaginary line is drawn from the observation point to the top edge of the car/lorry, a triangle is formed by the vertical, horizontal and imaginary line.

If the height of the balloon at point P is 'h' m

and distance AB is 'x' m, then 'x' and 'h' are related as:

A.  $h = 3x$

B.  $x = 3h$

C.  $h = \sqrt{3}x$

D.  $x = \sqrt{3}h$

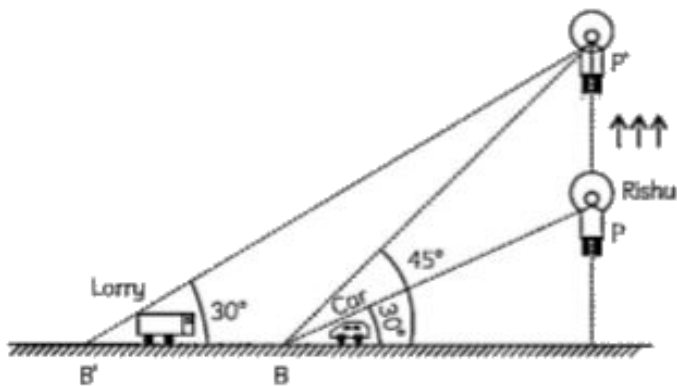
**Answer:**



**Watch Video Solution**



79. Rishu is riding in a hot air balloon. After reaching a point P, he spots a car parked at B on the ground at an angle of depression of  $30^\circ$ . The balloon rises further by 50 metres and now he spots the same car at an angle of depression of  $45^\circ$  and a lorry parked at B' at an angle of depression of  $30^\circ$ . (Use  $\sqrt{3} = 1.73$ )



The measurement of Rishu facing vertically is

the height. Distance is defined as the measurement of car/lorry from a point in a horizontal direction. If an imaginary line is drawn from the observation point to the top edge of the car/lorry, a triangle is formed by the vertical, horizontal and imaginary line.

The height of the balloon at point P, then

A.  $h = x + 50$

B.  $x = h + 50$

C.  $h = 50 - x$

D.  $x = 50$  h

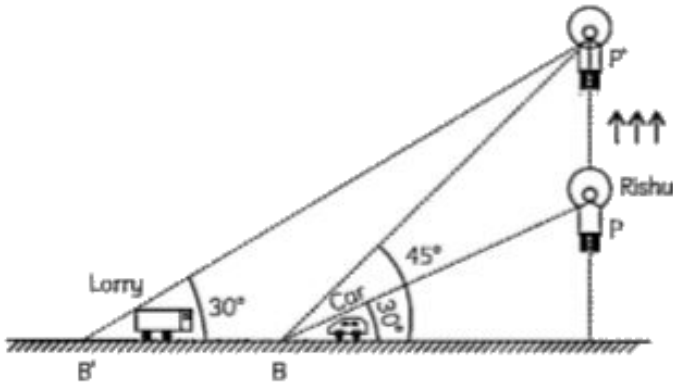
**Answer:**



**Watch Video Solution**

**80.** Rishu is riding in a hot air balloon. After reaching a point P, he spots a car parked at A on the ground at an angle of depression of  $30^\circ$ . The balloon rises further by 50 metres and now he spots the same car at an angle of depression of  $45^\circ$  and a lorry parked at B' at

an angle of depression of  $30^\circ$ . (Use  $\sqrt{3} = 1.73$ )



The measurement of Rishu facing vertically is the height. Distance is defined as the measurement of car/lorry from a point in a horizontal direction. If an imaginary line is drawn from the observation point to the top edge of the car/lorry, a triangle is formed by the vertical, horizontal and imaginary line.

The height of the balloon at point P, then

A. 68.25 m

B. 86.5 m

C. 73.2 m

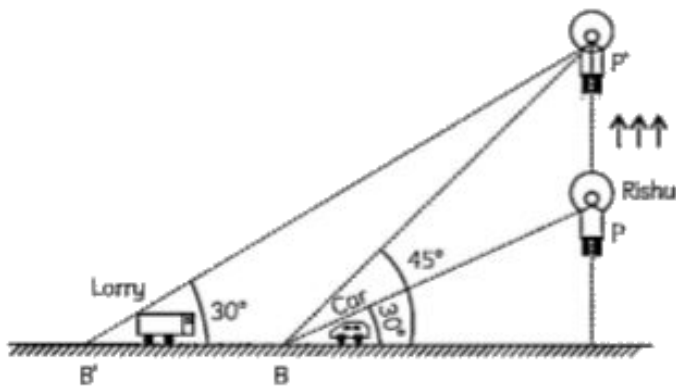
D. 70.8 m

**Answer:**



**Watch Video Solution**

81. Rishu is riding in a hot air balloon. After reaching a point P, he spots a car parked at B on the ground at an angle of depression of  $30^\circ$ . The balloon rises further by 50 metres and now he spots the same car at an angle of depression of  $45^\circ$  and a lorry parked at B' at an angle of depression of  $30^\circ$ . (Use  $\sqrt{3} = 1.73$ )



The distance AB on the ground is

A. 124.2 m

B. 118 m

C. 171.4 m

D. 142.6 m

**Answer:**

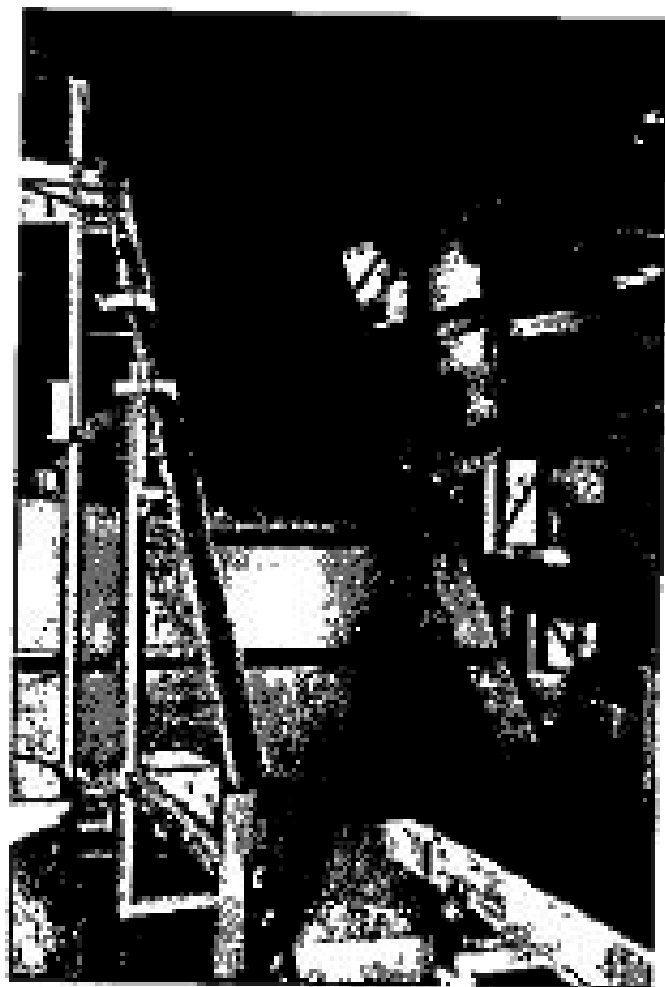


**Watch Video Solution**

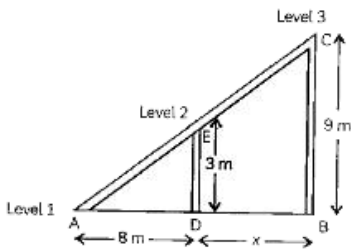
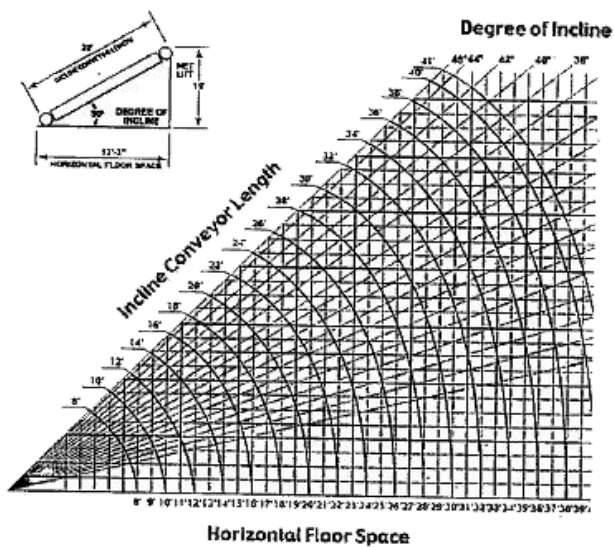
**82.** A factory is using an inclined conveyor belt to transport its product from level 1 to 2 which is 3 m above level - 1 as shown in the figure

below. The inclined conveyor is supported from one end to level 1 and from the other end to a post located 8 m away from level 1 supporting point.





## **Degree of Incline**



The factory wants to extend the conveyor belt to reach at a new level 3 which is 9 m above level 1 while maintaining the inclination angle. How much distance is extended from D to B?

A. 12 m

B. 16 m

C. 6 m

D. 3 m

**Answer:**



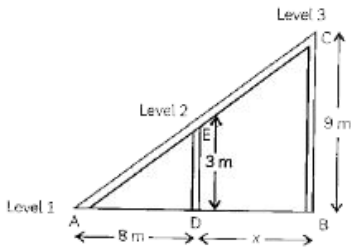
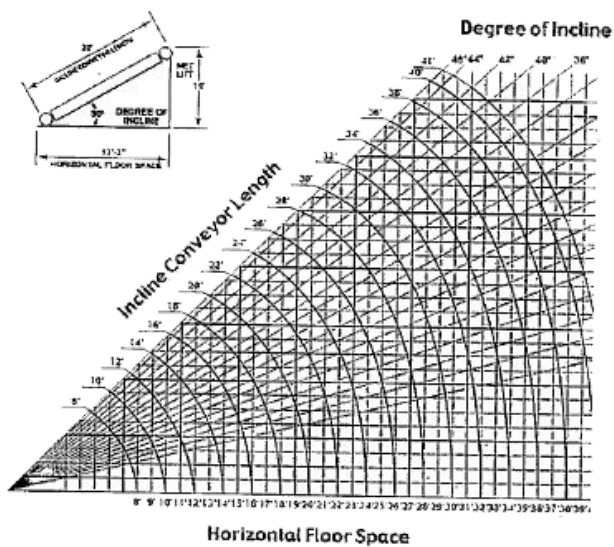
**Watch Video Solution**

**83.** A factory is using an inclined conveyor belt to transport its product from level 1 to 2 which is 3 m above level - 1 as shown in the figure below The inclined conveyor is supported from

one end to level 1 and from the other end to a post located 8 m away from level 1 supporting point.



## **Degree of Incline**



The factory wants to extend the conveyor belt to reach at a new level 3 which is 9 m above level 1 while maintaining the inclination angle.

The length of the conveyor belt up to level 3 is

A. 22.8 m

B. 26 m

C. 25.6 m

D. 33 m

**Answer:**



**Watch Video Solution**

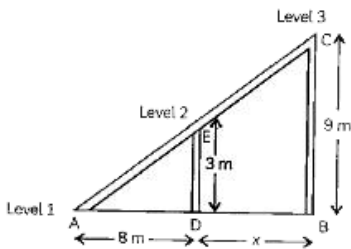
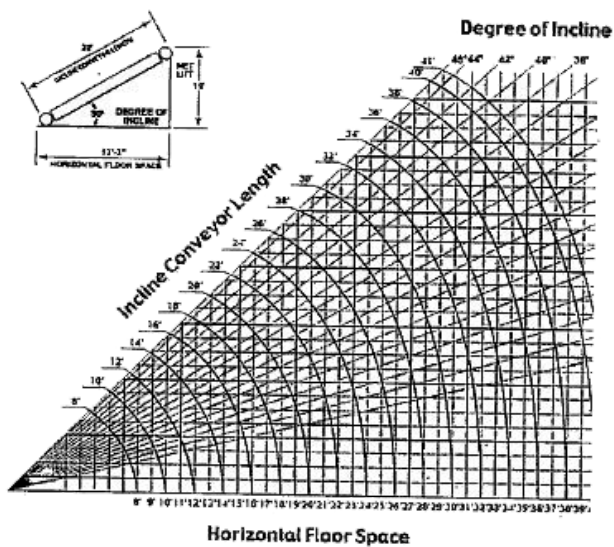
**84.** A factory is using an inclined conveyor belt to transport its product from level 1 to 2 which is 3 m above level - 1 as shown in the figure below The inclined conveyor is supported from

one end to level 1 and from the other end to a post located 8 m away from level 1 supporting point.





## **Degree of Incline**



The factory wants to extend the conveyor belt to reach at a new level 3 which is 9 m above level 1 while maintaining the inclination angle.

The length of the conveyor belt up to level 2 is

A. 12.1 m

B. 7.2 m

C. 6.9 m

D. 8.5 m

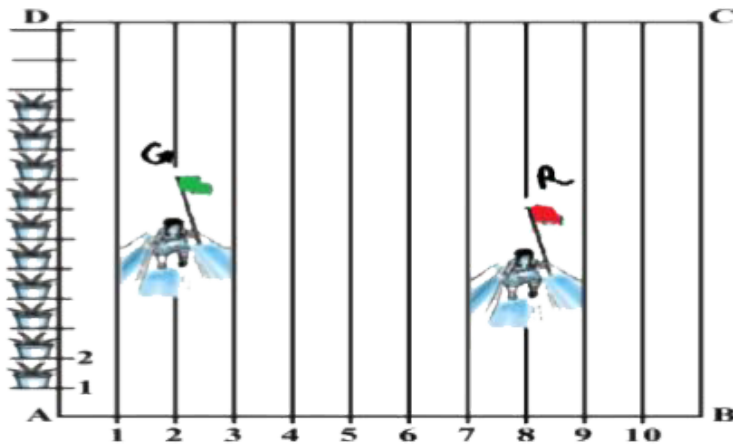
**Answer:**



**Watch Video Solution**

**85.** In order to conduct Sports Day activities in your School, lines have been drawn with chalk powder at a distance of 1 m each, in a rectangular shaped ground ABCD, 100

flowerpots have been placed at a distance of 1 m from each other along AD, as shown in given figure below. Niharika runs  $\frac{1}{4}$  th the distance AD on the 2nd line and posts a green flag. Preet runs  $\frac{1}{5}$  th distance AD on the eighth line and posts a red flag.



Find the position of green flag

A. (2, 50)

B. (2, 25)

C. (5,5)

D. (5, 20)

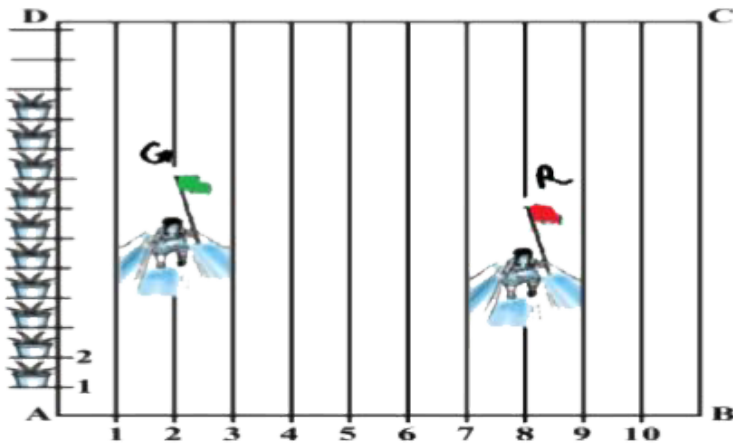
**Answer:**



**Watch Video Solution**

**86.** In order to conduct Sports Day activities in your School, lines have been drawn with chalk powder at a distance of 1 m each, in a rectangular shaped ground ABCD, 100

flowerpots have been placed at a distance of 1 m from each other along AD, as shown in given figure below. Niharika runs  $\frac{1}{4}$  th the distance AD on the 2nd line and posts a green flag. Preet runs  $\frac{1}{5}$  th distance AD on the eighth line and posts a red flag.



Find the position of red flag

A. (10,40)

B. (6, 25)

C. (5, 20)

D. (8,20)

**Answer:**



**Watch Video Solution**

**87.** A line intersects the  $y$ -axis and  $x$ -axis at the points  $P$  and  $Q$  respectively. If  $(2,-5)$  is the mid-point of  $PQ$  then find the coordinates of  $P$  and  $Q$ .



[Watch Video Solution](#)

**88.** Find the third vertex of a triangle, if two of its vertices are at  $(-3, 1)$  and  $(0, -2)$  and the centroid is at the origin.



[Watch Video Solution](#)

**89.** Explain why  $3 \times 5 \times 7 \times 9 \times 11 + 11$  is a composite number.



[Watch Video Solution](#)



**90.** If  $n = 2^3 \times 3^4 \times 5^4 \times 7$ , where  $n$  is a natural number, then find the number of consecutive zeros in  $n$



**Watch Video Solution**

**91.** Solve for  $x$  and  $y$  :

$$7x - 4y = 49, 5x - 6y = 57$$



**Watch Video Solution**

**92.** Metallic spheres of radii 6cm, 8cm and 10cm respectively are melted to form a solid sphere. Find the radius of the resulting sphere.



**Watch Video Solution**

**93.** If a number  $x$  is chosen at random from the numbers  $-2, -1, 0, 1, 2$ . What is the probability that  $x^2 < 2$ ?



**Watch Video Solution**

**94.** Prove that for any prime positive integer  $p$ ,  $\sqrt{p}$  is an irrational number.



**Watch Video Solution**

**95.** Find the zeros of the polynomial  
 $2x^2 - (1 + 2\sqrt{2})x + \sqrt{2}$



**Watch Video Solution**

**96.** Solve for x:

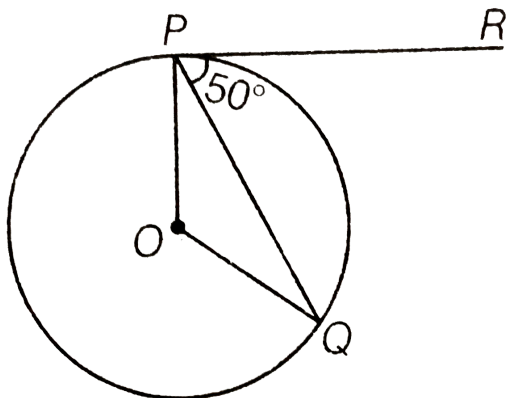
$$\frac{1}{x-2} + \frac{2}{x-1} = \frac{6}{x}, x \neq 0, 1, 2$$



**Watch Video Solution**

**97.** In figure, if O is the centre of a circle, PQ is a chord and the tangent PR at P makes an angle

of  $50^\circ$  with  $PQ$ , then  $\angle POQ$  is equal to



[Watch Video Solution](#)

**98.**  $O$  is any point inside a triangle  $ABC$ . The bisector of  $\angle AOB$ ,  $\angle BOC$  and  $\angle COA$  meet the sides  $AB$ ,  $BC$  and  $CA$  in point

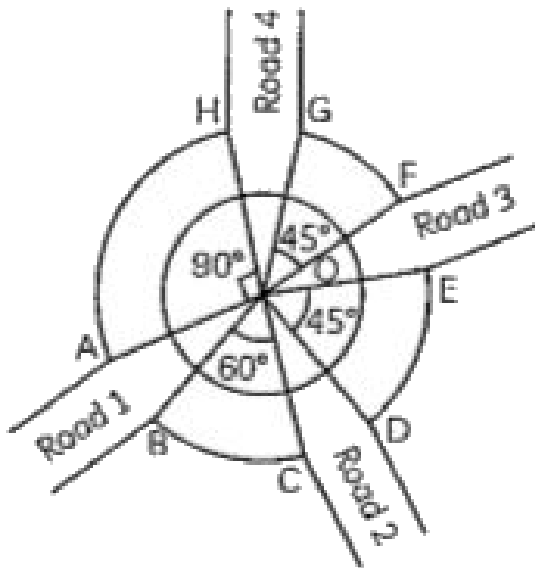
$D$ ,  $E$  and  $F$  respectively. Show that

$$AD \times BE \times CF = DB \times EC \times FA$$



[Watch Video Solution](#)

**99.** The central Park is in the form of a circle with centre  $O$  and radius 21 m.



Find the total lengths of the curbs,



[Watch Video Solution](#)

100. State and prove Basic Proportionality Theorem (Thales Theorem)



[Watch Video Solution](#)

**101.** D and E are points on the sides CA and CB respectively of a triangle ABC right angled at C. Prove that  $AE^2 + BD^2 = AB^2 + DE^2$ .



**Watch Video Solution**

**102.** The angles of depression of the top and bottom of a building 50 metres high as observed from the top of a tower are  $30^\circ$  and  $60^\circ$ , respectively. Find the height of



the tower and also the horizontal distance between the building and the tower.



[Watch Video Solution](#)

**103.** Ajay had some bananas and he divided them into two lots A and B. He sold lot A at the rate of Rs.2 for 3 bananas and lot B at the rate of Rs.1 per banana and got a total of Rs. 400. If he had sold lot A at the rate of Rs. 1 per banana and lot B at the rate of Rs. 4 for 5 bananas his total collection would have

been Rs. 460. Find the total number of bananas he had.



**Watch Video Solution**