

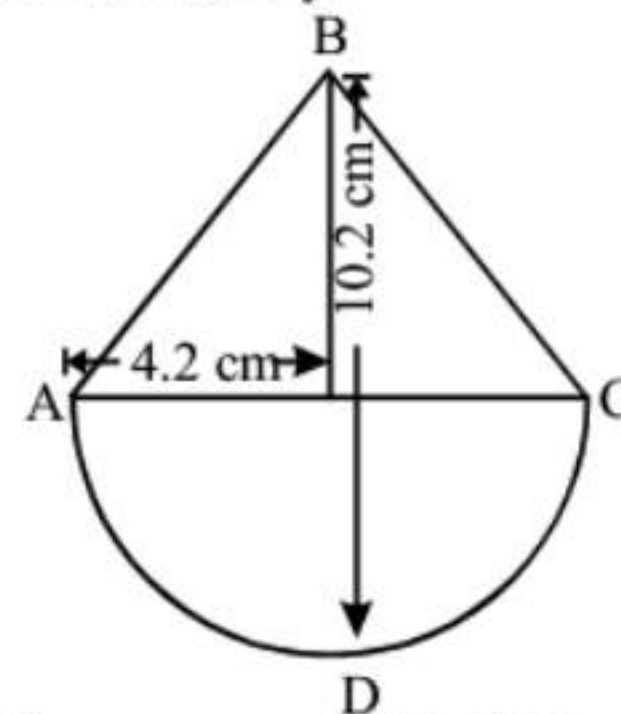
# Practice Exercise

## Level - I

- The side and the height of a rhombus are 13 and 20 cms respectively. Find the area.  
(a)  $260 \text{ cm}^2$  (b)  $275 \text{ cm}^2$   
(c)  $290 \text{ cm}^2$  (d) None of these
- The circumference of a circle is 44 metres. Find the area of the circle.  
(a)  $154 \text{ m}^2$  (b)  $160 \text{ m}^2$   
(c)  $175 \text{ m}^2$  (d)  $168 \text{ m}^2$
- The length and breadth of a rectangle are in the ratio 9 : 5. If its area is  $720 \text{ m}^2$ , find its perimeter.  
(a) 112 metre (b) 115 metre  
(c) 110 metre (d) 118 metre
- How many squares are there in a 5 inch by 5 inch square grid, if the grid is made up one inch by one inch squares?  
(a) 50 (b) 150 (c) 55 (d) 25
- If the ratio of areas of two squares is 9 : 1, the ratio of their perimeter is :  
(a) 9 : 1 (b) 3 : 4 (c) 3 : 1 (d) 1 : 3
- A circle and a rectangle have the same perimeter. The sides of the rectangle are 18 cm and 26 cm. What is the area of the circle ?  
(a)  $88 \text{ cm}^2$  (b)  $154 \text{ cm}^2$   
(c)  $1250 \text{ cm}^2$  (d)  $616 \text{ cm}^2$
- If the perimeter and diagonal of a rectangle are 14 and 5 cms respectively, find its area.  
(a)  $12 \text{ cm}^2$  (b)  $16 \text{ cm}^2$   
(c)  $20 \text{ cm}^2$  (d)  $24 \text{ cm}^2$
- When the circumference and area of a circle are numerically equal, then the diameter is numerically equal to  
(a) area (b) circumference  
(c) 4 (d)  $2\pi$
- In a parallelogram, the length of one diagonal and the perpendicular dropped on that diagonal are 30 and 20 metres respectively. Find its area.  
(a)  $600 \text{ m}^2$  (b)  $540 \text{ m}^2$   
(c)  $680 \text{ m}^2$  (d)  $574 \text{ m}^2$
- The area of a triangle is  $615 \text{ m}^2$ . If one of its sides is 123 metre, find the length of the perpendicular dropped on that side from opposite vertex.  
(a) 15 metres (b) 12 metres  
(c) 10 metres (d) None of these
- How many plants will be there in a circular bed whose outer edge measure 30 cms, allowing  $4 \text{ cm}^2$  for each plant ?  
(a) 18 (b) 750  
(c) 24 (d) 120
- A square carpet with an area  $169 \text{ m}^2$  must have 2 metres cut-off one of its edges in order to be a perfect fit for a rectangular room. What is the area of rectangular room?  
(a)  $180 \text{ m}^2$  (b)  $164 \text{ m}^2$   
(c)  $152 \text{ m}^2$  (d)  $143 \text{ m}^2$
- If the area of a circle decreases by 36%, then the radius of a circle decreases by  
(a) 20% (b) 18%  
(c) 36% (d) 64%
- The altitude drawn to the base of an isosceles triangle is 8 cm and the perimeter is 32 cm. The area of the triangle is  
(a)  $72 \text{ cm}^2$  (b)  $60 \text{ cm}^2$   
(c)  $66 \text{ cm}^2$  (d) None of these
- The area of a square field is  $576 \text{ km}^2$ . How long will it take for a horse to run around at the speed of 12 km/h ?  
(a) 12 h (b) 10 h  
(c) 8 h (d) 6 h
- Four equal circles are described about the four corners of a square so that each touches two of the others. If a side of the square is 14 cm, then the area enclosed between the circumferences of the circles is :  
(a)  $24 \text{ cm}^2$  (b)  $42 \text{ cm}^2$   
(c)  $154 \text{ cm}^2$  (d)  $196 \text{ cm}^2$
- The ratio between the length and the breadth of a rectangular park is 3 : 2. If a man cycling along the boundary of the park at the speed of 12 km / hr completes one round in 8 minutes, then the area of the park (in sq. m) is:  
(a) 15360 (b) 153600  
(c) 30720 (d) 307200
- A wire can be bent in the form of a circle of radius 56 cm. If it is bent in the form of a square, then its area will be:  
(a)  $3520 \text{ cm}^2$  (b)  $6400 \text{ cm}^2$   
(c)  $7744 \text{ cm}^2$  (d)  $8800 \text{ cm}^2$
- The length of a room is double its breadth. The cost of colouring the ceiling at ₹ 25 per sq. m is ₹ 5,000 and the cost of painting the four walls at ₹ 240 per sq. m is ₹ 64,800. Find the height of the room.  
(a) 4.5 m (b) 4 m (c) 3.5 m (d) 5 m
- A metal cube of edge 12 cm is melted and formed into three smaller cubes. If the edges of two smaller cubes are 6 cm and 8 cm, then find the edge of the third smaller cube.  
(a) 10 cm (b) 14 cm  
(c) 12 cm (d) 16 cm
- A well 22.5 deep and of diameter 7 m has to be dug out. Find the cost of plastering its inner curved surface at ₹ 3 per sq. metre.  
(a) ₹ 1465 (b) ₹ 1485  
(c) ₹ 1475 (d) ₹ 1495
- The surface area of a cube is  $150 \text{ m}^2$ . The length of its diagonal is  
(a)  $5\sqrt{3} \text{ m}$  (b) 5 m  
(c)  $\frac{10}{\sqrt{3}} \text{ m}$  (d) 15 m



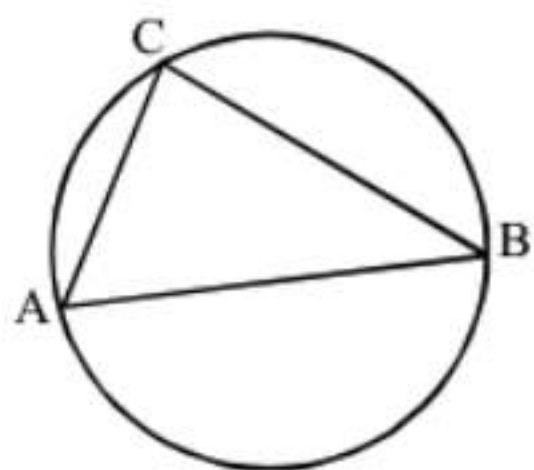
23. The length of the longest rod that can be placed in a room which is 12 m long, 9 m broad and 8 m high is  
(a) 27 m (b) 19 m  
(c) 17 m (d) 13 m
24. If the volume of a sphere is divided by its surface area, the result is 27 cms. The radius of the sphere is  
(a) 9 cms (b) 27 cms  
(c) 81 cms (d) 243 cms
25. The volume of water measured on a rectangular field  $500 \text{ m} \times 300 \text{ m}$  is  $3000 \text{ m}^3$ . Find the depth (amount) of rain that has fallen.  
(a) 2 cms (b) 3 cms  
(c) 4 cms (d) 3.5 cms
26. How many spherical bullets can be made out of a lead cylinder 28 cm high and with base radius 6 cm, each bullet being 1.5 cm in diameter?  
(a) 1845 (b) 1824  
(c) 1792 (d) 1752
27. Water flows out through a circular pipe whose internal diameter is 2 cm, at the rate of 6 metres per second into a cylindrical tank, the radius of whose base is 60 cm. By how much will the level of water rise in 30 minutes?  
(a) 2 m (b) 4 m  
(c) 3 m (d) 5 m
28. A spherical ball of lead, 3 cm in diameter, is melted and recast into three spherical balls. The diameter of two of these balls are 1.5 cm and 2 cm respectively. The diameter of the third ball is  
(a) 2.5 cm (b) 2.66 cm  
(c) 3 cm (d) 3.5 cm
29. A cube of  $384 \text{ cm}^2$  surface area is melt to make  $x$  number of small cubes each of  $96 \text{ mm}^2$  surface area. The value of  $x$  is  
(a) 80,000 (b) 8  
(c) 8,000 (d) 800
30. The capacity of a cylindrical tank is 246.4 litres. If the height is 4 metres, what is the diameter of the base?  
(a) 1.4 m (b) 2.8 m  
(c) 14 m (d) None of these
31. A conical cavity is drilled in a circular cylinder of 15 cm height and 16 cm base diameter. The height and the base diameter of the cone are same as those of the cylinder. Determine the total surface area of the remaining solid.  
(a)  $440 \pi \text{ cm}^2$  (b)  $215 \pi \text{ cm}^2$   
(c)  $542 \pi \text{ cm}^2$  (d)  $376 \pi \text{ cm}^2$
32. If the radius of a sphere is increased by 2 cm, then its surface area increases by  $352 \text{ cm}^2$ . The radius of the sphere before the increase was:  
(a) 3 cm (b) 4 cm  
(c) 5 cm (d) 6 cm
33. A hollow sphere of internal and external diameters 4 cm and 8 cm respectively is melted into a cone of base diameter 8 cm. The height of the cone is:  
(a) 12 cm (b) 14 cm  
(c) 15 cm (d) 18 cm
34. The length and breadth of a playground are 36m and 21 m respectively. Poles are required to be fixed all along the boundary at a distance 3m apart. The number of poles required will be  
(a) 39 (b) 38 (c) 37 (d) 40
35. The length of a rectangular field is double its width. Inside the field there is a square-shaped pond 8 m long. If the area of the pond is  $\frac{1}{8}$  of the area of the field, what is the length of the field?  
(a) 32 m (b) 16 m (c) 64 m (d) 20 m
36. A horse is tethered to one corner of a rectangular grassy field 40 m by 24 m with a rope 14 m long. Over how much area of the field can it graze?  
(a)  $154 \text{ cm}^2$  (b)  $308 \text{ m}^2$   
(c)  $150 \text{ m}^2$  (d) None of these
37. The length of a cold storage is double its breadth. Its height is 3 metres. The area of its four walls (including the doors) is  $108 \text{ m}^2$ . Find its volume.  
(a)  $215 \text{ m}^3$  (b)  $216 \text{ m}^3$   
(c)  $217 \text{ m}^3$  (d)  $218 \text{ m}^3$
38. The cost of the paint is ₹ 36.50 per kg. If 1 kg of paint covers 16 square feet, how much will it cost to paint outside of a cube having 8 feet each side?  
(a) ₹ 692 (b) ₹ 768  
(c) ₹ 876 (d) ₹ 972
39. A cuboidal block of  $6 \text{ cm} \times 9 \text{ cm} \times 12 \text{ cm}$  is cut up into an exact number of equal cubes. The least possible number of cubes will be:  
(a) 6 (b) 9  
(c) 24 (d) 30
40. A semicircular sheet of paper of diameter 28 cm is bent to cover the exterior surface of an open conical ice-cream cup. The depth of the ice-cream cup is  
(a) 10.12 cm (b) 8.12 cm  
(c) 12.12 cm (d) 13.27 cm
41. How many squares are there in a 5 inch by 5 inch square grid, if the grid is made up one inch by one inch squares?  
(a) 50 (b) 150  
(c) 55 (d) 25
42. A solid wooden toy in the shape of a right circular cone is mounted on a hemisphere. If the radius of the hemisphere is 4.2 cm and the total height of the toy is 10.2 cm, find the volume of the wooden toy.



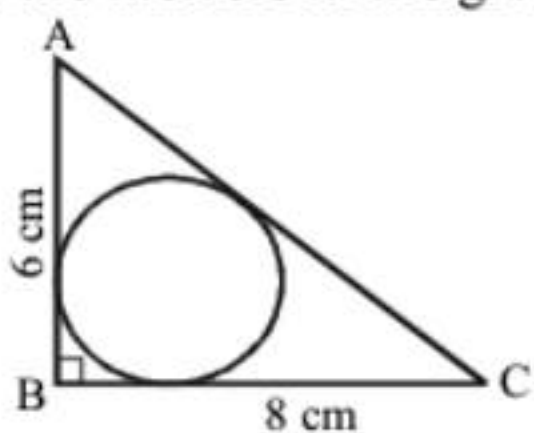
- (a)  $104 \text{ cm}^3$  (b)  $162 \text{ cm}^3$   
(c)  $427 \text{ cm}^3$  (d)  $266 \text{ cm}^3$



43. The dimensions of a field are 20 m by 9 m. A pit 10 m long, 4.5 m wide and 3 m deep is dug in one corner of the field and the earth removed has been evenly spread over the remaining area of the field. What will be the rise in the height of field as a result of this operation?  
 (a) 1 m (b) 2 m (c) 3 m (d) 4 m
44. In a triangle  $ABC$ , points  $P$ ,  $Q$  and  $R$  are the mid-points of the sides  $AB$ ,  $BC$  and  $CA$  respectively. If the area of the triangle  $ABC$  is 20 sq. units, find the area of the triangle  $PQR$   
 (a) 10 sq. units (b) 5.3 sq. units  
 (c) 5 sq. units (d) None of these
45. From a circular sheet of paper with a radius of 20 cm, four circles of radius 5 cm each are cut out. What is the ratio of the areas of uncut to the cut portion?  
 (a) 1 : 3 (b) 4 : 1 (c) 3 : 1 (d) 4 : 3
46. The figure shows a circle of diameter  $AB$  and radius 6.5 cm. If chord  $CA$  is 5 cm long, find the area of triangle  $ABC$

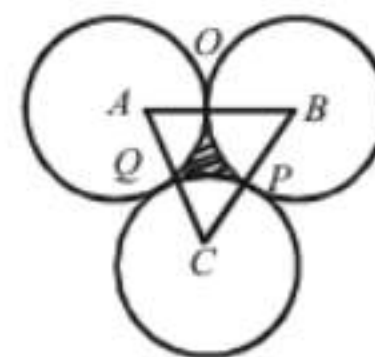


- (a) 60 sq. cm. (b) 30 sq. cm.  
 (c) 40 sq. cm. (d) 52 sq. cm.
47. The sides of a triangle are 5, 12 and 13 units respectively. A rectangle is constructed which is equal in area to the triangle and has a width of 10 units. Then the perimeter of the rectangle is  
 (a) 30 (b) 26  
 (c) 13 (d) None of these
48. One diagonal of a rhombus is 24 cm whose side is 13 cm. Find the area of the rhombus.  
 (a) 25 sq. cm (b) 312 sq. cm.  
 (c) 125 sq. cm. (d) 120 sq. cm.
49. The radius of the incircle in the given diagram will be

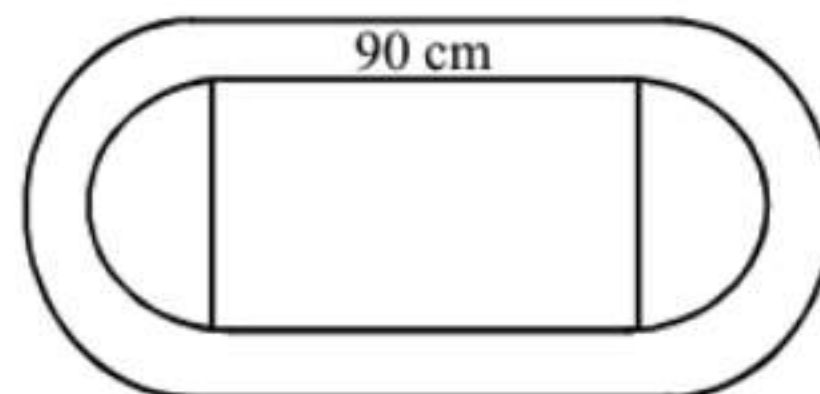


- (a) 1.8 cm (b) 2 cm  
 (c) 2.5 cm (d) 3.6 cm
50. If a rectangular paper of length 6 cm. and width 3 cm. is rolled to form a cylinder with height equal to the width of the paper, then its base radius is –  
 (a)  $\frac{6}{\pi}$  cm (b)  $\frac{3}{\pi}$  cm  
 (c)  $\frac{3}{2\pi}$  cm (d)  $\frac{9}{2\pi}$  cm

51. A hollow spherical shell is made of metal of density  $4.8 \text{ g/cm}^3$ . If its internal and external radii are 10 cm and 12 cm respectively, find the weight of the shell  
 (a) 15.24 kg (b) 12.84 kg  
 (c) 14.64 kg (d) None of these
52. The area of the circle that can be inscribed in a square of side 6 cm is  
 (a)  $36\pi \text{ cm}^2$  (b)  $18\pi \text{ cm}^2$   
 (c)  $12\pi \text{ cm}^2$  (d)  $9\pi \text{ cm}^2$
53. Circumference of a sector of angle  $p^\circ$  of a circle with radius  $R$  is  
 (a)  $\frac{P}{180} \times 2\pi R$  (b)  $\frac{P}{180} \times \pi R^2$   
 (c)  $\frac{P}{360} \times 2\pi R$  (d)  $\frac{P}{720} \times 2\pi R^2$
54. Three circles with centres  $A$ ,  $B$  and  $C$  and with unit radii touch each other at  $O$ ,  $P$  and  $Q$ . Find the area of the shaded region.



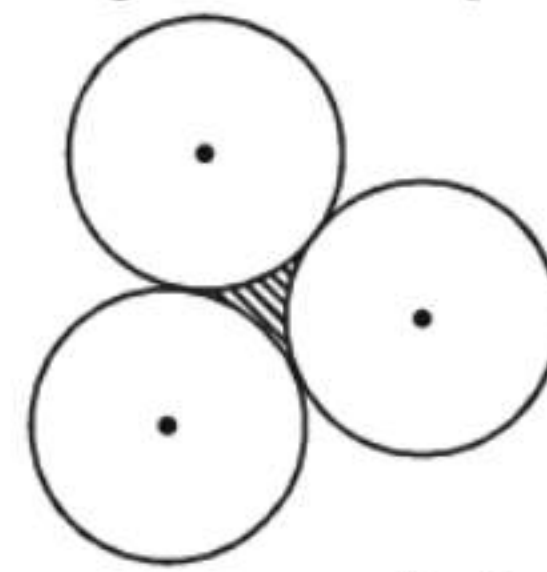
- (a) 0.16 sq. units (b) 1.21 sq. units  
 (c) 0.03 sq. units (d) 0.32 units
55. The inside perimeter of a practice running track with semi-circular ends and straight parallel sides is 312 m. The length of the straight portion of the track is 90 m. If the track has a uniform width of 2 m throughout, find its area.



- (a)  $5166 \text{ m}^2$  (b)  $5802.57 \text{ m}^2$   
 (c)  $636.57 \text{ m}^2$  (d)  $1273.14 \text{ m}^2$
56. The circumference of a circle is 792 meters. What will be its radius?  
 [SBI Clerk-June-2012]  
 (a) 120 metres (b) 133 metres  
 (c) 145 metres (d) 136 metres  
 (e) None of these
57. The area of a rectangle is 1209 square metres. Its length measures 39 metres. How much is its perimeter?  
 [SBI Clerk-June-2012]  
 (a) 122 metres (b) 134 metres  
 (c) 148 metres (d) 144 metres  
 (e) None of these
58. Area of rectangular field is  $3584 \text{ m}^2$  and the length and the breadth are in the ratio 7 : 2 respectively. What is the perimeter of the rectangle?  
 [SBI Clerk-2012]  
 (a) 246 m (b) 292 m  
 (c) 286 m (d) 288 m  
 (e) None of these



59. The base of a triangle is 2 cm more than twice its altitude. If the area is 12 sq. cm, its altitude will be  
[SSC-Sub. Ins.-2012]  
(a) 6 cm (b) 5 cm  
(c) 4 cm (d) 3 cm
60. If the volume and the surface area of a sphere are numerically equal, then the numerical value of the radius of the sphere is  
[SSC-Sub. Ins.-2012]  
(a) 1 (b) 2  
(c) 3 (d) 4
61. The area of a semi-circular field is 308 sq. m; then taking  $\pi = \frac{22}{7}$ , the length of the railing to surround it has to be  
[SSC-Sub. Ins.-2012]  
(a) 44 m (b) 72 m  
(c) 88 m (d) 80 m
62. Volume of a right circular cone is numerically equal to its slant surface area. Then value of  $\left(\frac{1}{h^2} + \frac{1}{r^2}\right)$ , where h and r are height and radius of the cone respectively, is  
[SSC-Sub. Ins.-2012]  
(a) 9 units (b)  $\frac{1}{9}$  unit  
(c) 4 units (d)  $\frac{1}{4}$  unit
63. If the numerical value of the volume of a right circular cylinder and its curved surface area are equal, then its radius is  
[SSC-Sub. Ins.-2012]  
(a) 2 units (b) 4 units  
(c) 3 units (d) 6 units
64. A solid right circular cylinder and a solid hemisphere stand on equal bases and have the same height. The ratio of their whole surface areas is:  
[SSC-Sub. Ins.-2013]  
(a) 3:2 (b) 3:4  
(c) 4:3 (d) 2:3
65. If area of an equilateral triangle is  $a$  and height  $b$ , then value of  $\frac{b^2}{a}$  is:  
[SSC-Sub. Ins.-2013]  
(a) 3 (b)  $\frac{1}{3}$   
(c)  $\sqrt{3}$  (d)  $\frac{1}{\sqrt{3}}$
66. A copper sphere of diameter 18 cm is drawn into a wire of diameter 4 mm. The length of the wire, in metre, is :  
[SSC-Sub. Ins.-2013]  
(a) 2.43 (b) 243  
(c) 2430 (d) 24.3
67. Water flows at the rate of 10 metres per minute from a cylindrical pipe 5 mm in diameter. How long it take to fill up a conical vessel whose diameter at the base is 30 cm and depth 24 cm?  
[SSC-Sub. Ins.-2013]  
(a) 28 minutes 48 seconds  
(b) 51 minutes 12 seconds  
(c) 51 minutes 24 seconds  
(d) 28 minutes 36 seconds
68. If the volumes of two right circular cones are in the ratio 4 : 1 and their diameters are in the ratio 5 : 4 then the ratio of their heights is :  
[SSC-Sub. Ins.-2013]  
(a) 25:16 (b) 25:64  
(c) 64:25 (d) 16:25
69. Three circles of equal radius 'a' cm touch each other. The area of the shaded region is :  
[SSC-Sub. Ins.-2013]



- (a)  $\left(\frac{\sqrt{3} + \pi}{2}\right)a^2 \text{ sq.cm}$  (b)  $\left(\frac{6\sqrt{3} - \pi}{2}\right)a^2 \text{ sq.cm}$   
(c)  $(\sqrt{3} - \pi)a^2 \text{ sq.cm}$  (d)  $\left(\frac{2\sqrt{3} - \pi}{2}\right)a^2 \text{ sq.cm}$
70. The radius of a right circular cone is 3 cm and its height is 4 cm. The total surface area of the cone is  
[SSC-Sub. Ins.-2014]  
(a) 48.4 sq.cm (b) 64.4 sq.cm  
(c) 96.4 sq.cm (d) 75.4 sq.cm
71. A wooden box of dimension 8 metre  $\times$  7 metre  $\times$  6 metre is to carry rectangular boxes of dimensions 8 cm  $\times$  7 cm  $\times$  6 cm. The maximum number of boxes that can be carried in 1 wooden box is  
[SSC-Sub. Ins.-2014]  
(a) 7500000 (b) 9800000  
(c) 1200000 (d) 1000000
72. Two circular cylinders of equal volume have their heights in the ratio 1 : 2; Ratio of their radii is (Take  $\pi = \frac{22}{7}$ )  
[SSC-Sub. Ins.-2014]  
(a) 1 : 4 (b) 1 :  $\sqrt{2}$   
(c)  $\sqrt{2} : 1$  (d) 1 : 2
73. A rectangular piece of paper of dimensions 22 cm by 12 cm is rolled along its length to form a cylinder. The volume (in  $\text{cm}^3$ ) of the cylinder so formed is (use  $\pi = \frac{22}{7}$ )  
[SSC-Sub. Ins.-2014]  
(a) 562 (b) 412  
(c) 462 (d) 362



74. A sphere is placed inside a right circular cylinder so as to touch the top, base and the lateral surface of the cylinder. If the radius of the sphere is  $R$ , the volume of the cylinder is [SSC-Sub. Ins.-2014]  
 (a)  $2\pi R^3$  (b)  $4\pi R^3$   
 (c)  $8\pi R^3$  (d)  $\frac{8}{3}\pi R^3$
75. A godown is 15 m long and 12 m broad. The sum of the areas of the floor and the ceiling is equal to the sum of areas of the four walls. The volume (in  $\text{m}^3$ ) of the godown is: [SSC-Sub. Ins.-2014]  
 (a) 900 (b) 1200  
 (c) 1800 (d) 720
76. A circle is inscribed in an equilateral triangle and a square is inscribed in that circle. The ratio of the areas of the triangle and the square is [SSC-MT-2013]  
 (a)  $3\sqrt{3}:1$  (b)  $\sqrt{3}:4$   
 (c)  $\sqrt{3}:8$  (d)  $3\sqrt{3}:2$
77. If the sum of the length, breadth and height of a rectangular parallelopiped is 24 cm and the length of its diagonal is 15 cm, then its total surface area is [SSC-MT-2013]  
 (a)  $351 \text{ cm}^2$  (b)  $256 \text{ cm}^2$   
 (c)  $265 \text{ cm}^2$  (d)  $315 \text{ cm}^2$
78. Diagonal of a cube is  $6\sqrt{3}$  cm. Ratio of its total surface area and volume (numerically) is: [SSC 10+2-2012]  
 (a) 2 : 1 (b) 1 : 6  
 (c) 1 : 1 (d) 1 : 2
79. The minute hand of a big wall-clock is 35 cm long. Taking  $\pi = \frac{22}{7}$ , length of the arc, its extremity moves in 18 seconds is : [SSC 10+2-2012]  
 (a) 11 cm (b) 1.1 cm  
 (c) 6.6 cm (d) 6 cm
80. The length of the two sides forming the right angle of a right-angled triangle are 6 cm and 8 cm. The length of its circum-radius is : [SSC 10+2-2012]  
 (a) 5 cm (b) 7 cm  
 (c) 6 cm (d) 10 cm
81. The length of radius of a circumcircle of a triangle having sides 3 cm, 4 cm and 5 cm is: [SSC 10+2-2012]  
 (a) 2 cm (b) 2.5 cm  
 (c) 3 cm (d) 1.5 cm
82. The length and breadth of a square are increased by 30% and 20% respectively. The area of the rectangle so formed exceeds the area of the square by: [SSC 10+2-2012]  
 (a) 46% (b) 66%  
 (c) 42% (d) 56%
83. The volume of a cubical box is 3.375 cubic meters. The length of edge of the box is: [SSC 10+2-2012]  
 (a) 75 cm (b) 1.5 m  
 (c) 1.125 m (d) 2.5 m
84. The length of a minute hand of a clock is 7 cm. The area swept by the minute hand in 30 minutes is: [SSC 10+2-2012]  
 (a) 210 sq. cm (b) 154 sq. cm  
 (c) 77 sq. cm (d) 147 sq. cm
85. The perimeter of a semi-circular area is 18 cm, then the radius is : (using  $\pi = \frac{22}{7}$ ) [SSC 10+2-2012]  
 (a)  $5\frac{1}{3}$  cm (b)  $3\frac{1}{2}$  cm  
 (c) 6 cm (d) 4 cm
86. The circumference of the base of a 16 cm height solid cone is 33 cm. What is the volume of the cone in  $\text{cm}^3$ ? [SSC 10+2-2012]  
 (a) 1028 (b) 616  
 (c) 462 (d) 828
87. The ratio of the edges of rectangular parallelopiped is 1 : 2 : 3 and its volume is 1296 cubic cm. The area of the whole surface in sq. cm is : [SSC 10+2-2012]  
 (a) 696 (b) 792  
 (c) 824 (d) 548
88. The base of a right pyramid is an equilateral triangle of side  $10\sqrt{3}$  cm. If the total surface area of the pyramid is  $270\sqrt{3}$  sq. cm, its height is [SSC 10+2-2013]  
 (a) 12 cm (b)  $12\sqrt{3}$  cm  
 (c) 10 cm (d)  $10\sqrt{3}$  cm
89. The volumes of a cylinder and a cone are in the ratio 3 : 1. Find their diameters and then compare them when their heights are equal. [SSC 10+2-2013]  
 (a) Diameter of cylinder < Diameter of cone  
 (b) Diameter of cylinder = 2 times of diameter of cone  
 (c) Diameter of cylinder = Diameter of cone  
 (d) Diameter of cylinder > Diameter of cone
90. A square of side 3 cm is cut off from each corner of a rectangular sheet of length 24 cm and breadth 18 cm and the remaining sheet is folded to form an open rectangular box. The surface area of the box is [SSC 10+2-2013]  
 (a)  $423 \text{ cm}^2$  (b)  $468 \text{ cm}^2$   
 (c)  $396 \text{ cm}^2$  (d)  $612 \text{ cm}^2$
91. The sides of a triangle are 16 cm, 12 cm and 20 cm. Find the area [SSC 10+2-2013]  
 (a)  $81 \text{ cm}^2$  (b)  $64 \text{ cm}^2$   
 (c)  $112 \text{ cm}^2$  (d)  $96 \text{ cm}^2$
92. What is the height of a cylinder that has the same volume and radius as a sphere of diameter 12 cm? [SSC 10+2-2013]  
 (a) 8 cm (b) 7 cm  
 (c) 10 cm (d) 9 cm
93. The volume of air in a room is  $204 \text{ m}^3$ . The height of the room is 6 m. What is the floor area of the room? [SSC 10+2-2013]  
 (a)  $34 \text{ m}^2$  (b)  $32 \text{ m}^2$   
 (c)  $46 \text{ m}^2$  (d)  $44 \text{ m}^2$



94. If the total surface area of a cube is  $96 \text{ cm}^2$ , its volume is [SSC 10+2-2013]  
 (a)  $36 \text{ cm}^3$  (b)  $56 \text{ cm}^3$   
 (c)  $16 \text{ cm}^3$  (d)  $64 \text{ cm}^3$
95. 360 sq. cm and 250 sq. cm are the areas of two similar triangles. If the length of one of the sides of the first triangle be 8 cm, then the length of the corresponding side of the second triangle is [SSC 10+2-2013]  
 (a) 6 cm (b)  $6\frac{1}{5}$  cm  
 (c)  $6\frac{1}{3}$  cm (d)  $6\frac{2}{3}$  cm
96. The length and breadth of a rectangle are doubled. Percentage increase in area is [SSC 10+2-2013]  
 (a) 400% (b) 150%  
 (c) 200% (d) 300%
97. The base of a right prism is a triangle whose perimeter is 28 cm and the inradius of the triangle is 4 cm. If the volume of the prism is 366 cc, then its height is [SSC 10+2-2013]  
 (a) 4 cm (b) 8 cm  
 (c) 6 cm (d) None of these
98. The difference between the circumference and the radius of a circle is 37 cm. The area of circle is (Take  $\pi = \frac{22}{7}$ ) [SSC 10+2-2013]  
 (a) 154 sq. cm (b) 259 sq. cm  
 (c) 148 sq. cm (d) 111 sq. cm
99. The sum of the interior angles of a polygon is  $1444^\circ$ . The number of sides of the polygon is [SSC 10+2-2014]  
 (a) 6 (b) 9  
 (c) 10 (d) 12
100. If the sides of a right angled triangle are three consecutive integers, then the length of the smallest side is [SSC 10+2-2014]  
 (a) 3 units (b) 2 units  
 (c) 4 units (d) 5 units
101. If the three medians of a triangle are same, then the triangle is [SSC 10+2-2014]  
 (a) equilateral (b) isosceles  
 (c) right-angled (d) obtuse-angled
102. The perimeters of two similar triangles  $\triangle ABC$  and  $\triangle PQR$  are 36 cm and 24 cm respectively. If  $PQ = 10$  cm, the AB is [SSC 10+2-2014]  
 (a) 15 cm (b) 12 cm  
 (c) 14 cm (d) 26 cm
103. Two circles intersect each other at the points A and B. A straight line parallel to AB intersects the circles at C, D, E and F. If  $CD = 4.5$  cm, then the measure of EF is [SSC 10+2-2014]  
 (a) 1.50 cm (b) 2.25 cm  
 (c) 4.50 cm (d) 9.00 cm
104. Area of a regular hexagon with side 'a' is [SSC 10+2-2014]  
 (a)  $\frac{3\sqrt{3}}{4} a^2$  sq. unit (b)  $\frac{12}{2\sqrt{3}} a^2$  sq. unit  
 (c)  $\frac{9}{2\sqrt{3}} a^2$  sq. unit (d)  $\frac{6}{\sqrt{2}} a^2$  sq. unit
105. If the sum of the dimensions of a rectangular parallelepiped is 24 cm and the length of the diagonal is 15 cm, then the total surface area of it is [SSC 10+2-2014]  
 (a)  $420 \text{ cm}^2$  (b)  $275 \text{ cm}^2$   
 (c)  $351 \text{ cm}^2$  (d)  $378 \text{ cm}^2$
106. A flask in the shape of a right circular cone of height 24 cm is filled with water. The water is poured in a right circular cylindrical flask whose radius is  $\frac{1}{3}$ rd of the radius of the base of the circular cone. Then the height of the water in the cylindrical flask is [SSC 10+2-2014]  
 (a) 32 cm (b) 24 cm  
 (c) 48 cm (d) 72 cm
107. The external fencing of a circular path around a circular plot of land is 33 m more than its interior fencing. The width of the path around the plot is [SSC 10+2-2014]  
 (a) 5.52 m (b) 5.25 m  
 (c) 2.55 m (d) 2.25 m
108. A vessel is in the form of an inverted cone. Its height is 11 cm and radius of its top, which is open, is 2.5 cm. It is filled with water upto the rim. When lead shots, each of which is a sphere of radius 0.25 cm are dropped into the vessel,  $\frac{2}{5}$  of the water flows out. The number of lead shots dropped into the vessel is [SSC 10+2-2014]  
 (a) 880 (b) 440  
 (c) 220 (d) 110
109. A plot of 1800 sq. ft. is available at the rate of ₹ 630 per sq. ft. If 45% of the total cost of the plot is to be paid at the time of booking it, how much is the booking amount? [IBPS Clerk-2012]  
 (a) ₹ 11,34,000 (b) ₹ 5,10,300  
 (c) ₹ 6,03,000 (d) ₹ 6,00,300  
 (e) None of these
110.  $\frac{1}{3}$ rd the diagonal of a square is  $3\sqrt{2}$  m. What is the measure of the side of the concerned square? [IBPS Clerk-2013]  
 (a) 12 m (b) 9 m  
 (c) 18 m (d) 6 m  
 (e) 7 m
111. The perimeter of a rectangle whose length is 6 m more than its breadth is 84 m. What would be the area of a triangle whose base is equal to the diagonal of the rectangle and whose height is equal to the length of the rectangle? (in  $\text{m}^2$ ) [IBPS Clerk-2013]  
 (a) 324 (b) 372  
 (c) 360 (d) 364  
 (e) 348

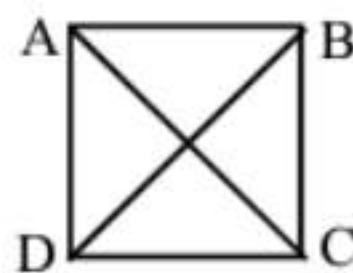


## Level - II

- 2 cm of rain has fallen on a sq. km of land. Assuming that 50% of the raindrops could have been collected and contained in a pool having a  $100 \text{ m} \times 10 \text{ m}$  base, by what level would the water level in the pool have increased?  
(a) 15 m (b) 20 m (c) 10 m (d) 25 m
- A right circular solid cylinder of base radius 4 cm and vertical height 22.5 cm is melted to form 8 equal solid spheres. If there is a process loss of 20% during such formation, then what is the radius of each of the solid sphere so formed?  
(a) 2 cm (b) 3 cm (c) 2.5 cm (d) 3.5 cm
- If the radius of a circle is diminished by 10%, the area is diminished by  
(a) 36% (b) 20% (c) 19% (d) 10%
- A landowner increased the length and breadth of a rectangular plot by 10% and 20% respectively. Find the percentage change in the cost of the plot.  
(a) 35% (b) 33% (c) 22.22% (d) 32%
- In the given diagram a rope is wound round the outside of a circular drum whose diameter is 70 cm and a bucket is tied to the other end of the rope. Find the number of revolutions made by the drum if the bucket is raised by 11 m.

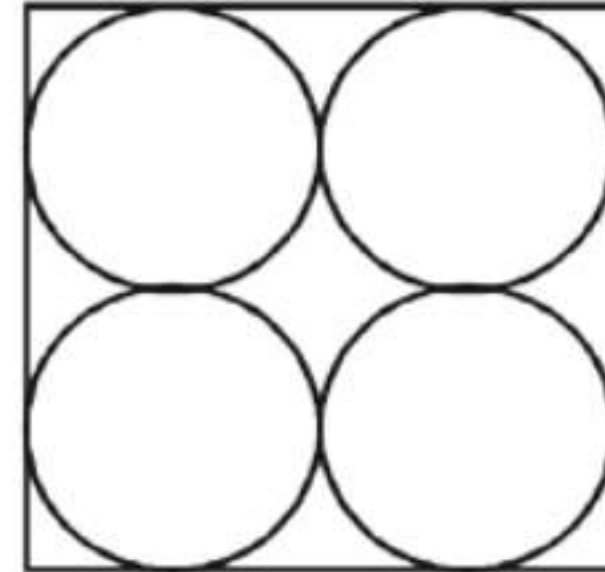


- (a) 10 (b) 2.5 (c) 5 (d) 5.5
- $ABCD$  is a square of area 4, which is divided into four non overlapping triangles as shown in the fig. Then the sum of the perimeters of the triangles is



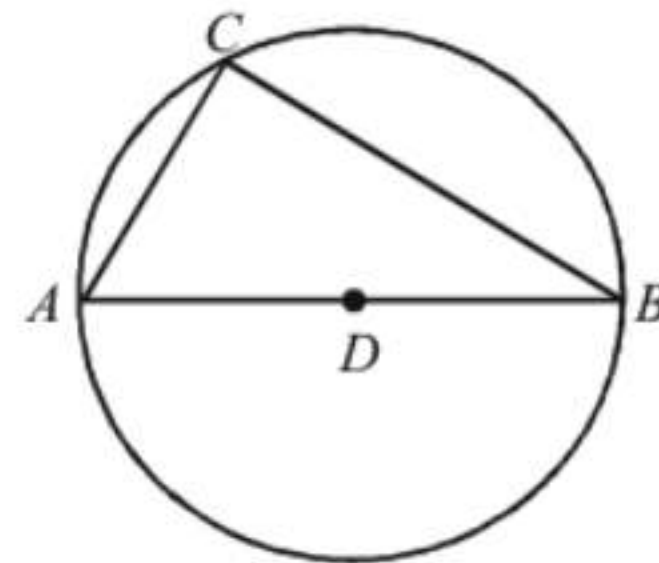
- (a)  $8(2 + \sqrt{2})$  (b)  $8(1 + \sqrt{2})$   
(c)  $4(1 + \sqrt{2})$  (d)  $4(2 + \sqrt{2})$
- A cone, a hemisphere and a cylinder stand on equal bases and have the same height, the height being equal to the radius of the circular base. Their total surface areas are in the ratio:  
(a)  $(\sqrt{2} + 1) : 3 : 4$  (b)  $(\sqrt{3} + 1) : 3 : 4$   
(c)  $\sqrt{2} : 3 : 4$  (d)  $\sqrt{3} : 7 : 8$

- Four identical coins are placed in a square. For each coin, the ratio of area to circumference is same as the ratio of circumference to area.



Then, find the area of the square that is not covered by the coins

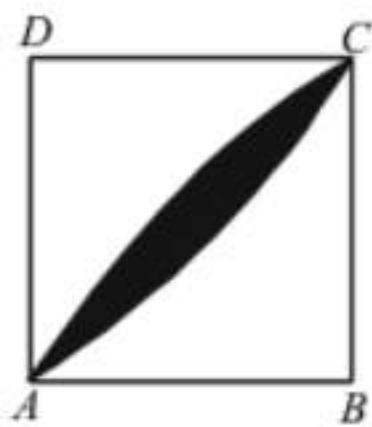
- (a)  $16(\pi - 1)$  (b)  $16(8 - \pi)$   
(c)  $16(4 - \pi)$  (d)  $16\left(4 - \frac{\pi}{2}\right)$
- The figure shows a circle of diameter  $AB$  and radius 6.5 cm. If chord  $CA$  is 5 cm. long, find the area of  $\triangle ABC$



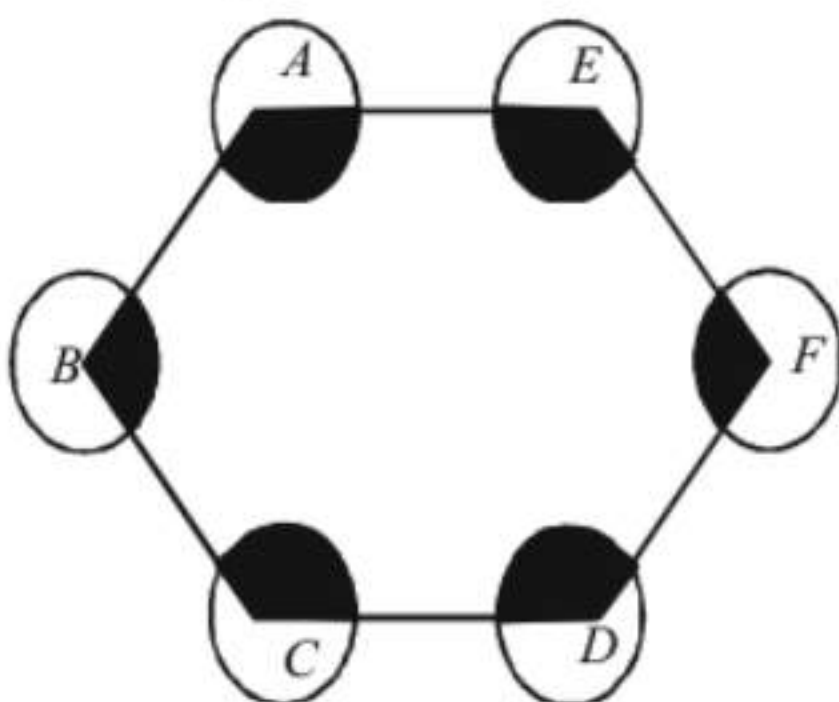
- (a) 60 sq. cm (b) 30 sq. cm  
(c) 40 sq. cm (d) 52 sq. cm.
- A slab of ice 8 inches in length, 11 inches in breadth, and 2 inches thick was melted and resolidified in the form of a rod of 8 inches diameter. The length of such a rod, in inches, is nearest to  
(a) 3 (b) 3.5  
(c) 4 (d) 4.5
  - A passage 12 m long, 3m high and 4 m wide has two doors of 2.5 m by 1.5 m and a window of 2 m by 0.60 m. The cost of colouring the walls and ceiling at ₹ 15 per sq. m is  
(a) ₹ 1023 (b) ₹ 432  
(c) ₹ 2029.5 (d) ₹ 1635
  - A pipes each of 3 inch diameter are to be replaced by a single pipe discharging the same quantity of water. What should be the diameter of the single pipe, if the speed of water is the same ?  
(a) 6 inch (b) 3 inch  
(c) 9 inch (d) 12 inch



13. A sphere is melted and half of the molten liquid is used to form 11 identical cubes, whereas the remaining half is used to form 7 identical smaller spheres. The ratio of the side of the cube to the radius of the new small sphere is  
(a)  $(4/3)^{1/3}$  (b)  $(8/3)^{1/3}$  (c)  $(3)^{1/3}$  (d) 2
14. Find the area of an isosceles triangle whose equal sides are 8 cm each and the third side is 10 cm?  
(a)  $10 \text{ cm}^2$  (b)  $48 \text{ cm}^2$   
(c)  $5\sqrt{39} \text{ cm}^2$  (d)  $10\sqrt{10} \text{ cm}^2$
15. In the figure given below,  $ABCD$  is a square of side 4 cm. Two quadrants of a circle with  $B$  and  $D$  as centres are drawn. The radius of each of the quadrants is 4 cm. What is the area of the shaded portion?



- (a) 4.56 sq. cm (b) 9.12 sq. cm  
(c) 13.68 sq. cm (d) 7.76 sq. cm
16. Find the volume and the total surface area of a solid right pyramid of its height is 4 cm, and its square base is of side 6 cm.  
(a) 86 sq. cm. (b) 90 sq. cm.  
(c) 80 sq. cm. (d) 96 sq. cm.
17. The radius of the incircle of triangle when sides are 18, 24 and 3 cm is  
(a) 2 cm. (b) 4 cm. (c) 6 cm. (d) 9 cm.
18. The sides of a triangle are 21, 20 and 13 cm. Find the area of the larger triangle into which the given triangle is divided by the perpendicular upon the longest side from the opposite vertex.  
(a)  $72 \text{ cm}^2$  (b)  $96 \text{ cm}^2$  (c)  $168 \text{ cm}^2$  (d)  $144 \text{ cm}^2$
19. A solid sphere of radius 6 cm is melted into a hollow cylinder of uniform thickness. If the external radius of the base of the cylinder is 5 cm and its height is 32 cm, find the uniform thickness of the cylinder.  
(a) 2 cm (b) 3 cm (c) 1 cm (d) 3.5 cm
20. Find the sum of the areas of the shaded sectors given that  $ABCDEF$  is any hexagon and all the circles are of same radius  $r$  with different vertices of the hexagon as their centres as shown in the figure.

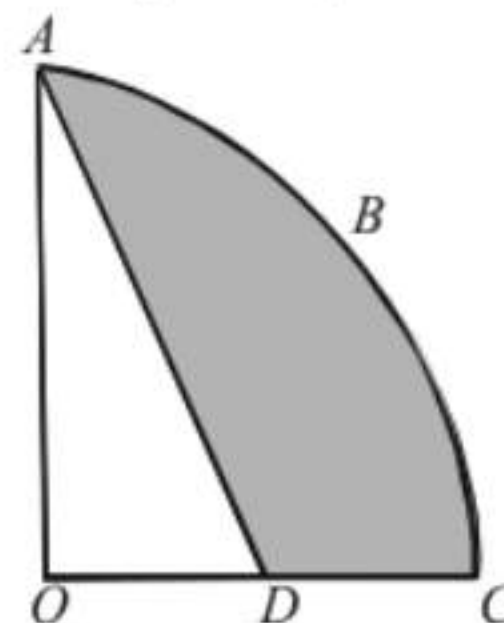


- (a)  $\pi r^2$  (b)  $2\pi r^2$  (c)  $5\pi r^2/4$  (d)  $3\pi r^2/2$

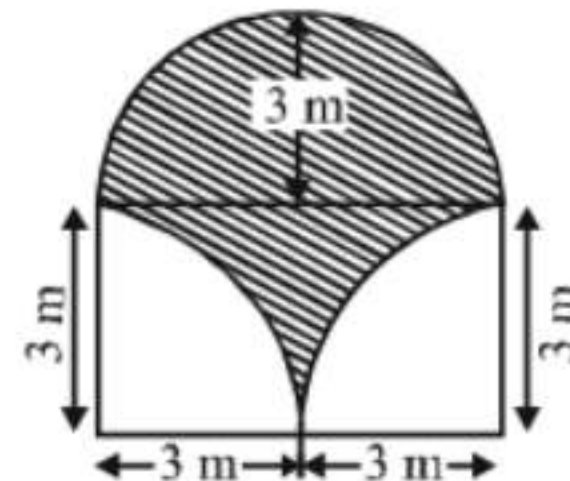
21. A cube is inscribed in a hemisphere of radius  $R$ , such that four of its vertices lie on the base of the hemisphere and the other four touch the hemispherical surface of the half-sphere. What is the volume of the cube?

- (a)  $0.25 R^3$  (b)  $0.67\sqrt{\frac{2}{3}}R^3$   
(c)  $0.5\sqrt{\frac{2}{3}}R^3$  (d)  $0.67 R^3$

22. In the figure given below,  $ABCO$  represents a quadrant of a circle of radius 10.5 cm with centre  $O$ . Calculate the area of shaded portion, if  $OD = DC$ .



- (a)  $59 \text{ cm}^2$  (b)  $69 \text{ cm}^2$   
(c)  $79 \text{ cm}^2$  (d)  $49 \text{ cm}^2$
23. In the adjoining figure is a park in which shaded area is to be covered by grass. If the rate of covering with grass is ₹ 0.70 per sq. m.



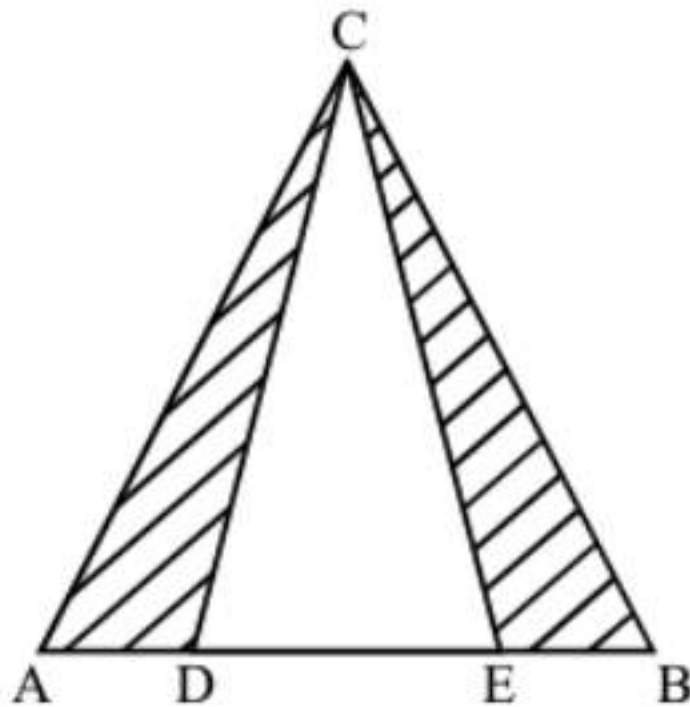
Find the expenditure of covering its field with grass ( $\pi = 22/7$ )

- (a) ₹ 12.60 (b) ₹ 6.30  
(c) ₹ 9.30 (d) ₹ 10.30
24.  $ABCD$  is a quadrilateral. The diagonals of  $ABCD$  intersect at the point  $P$ . The area of the triangles  $APD$  and  $BPC$  are 27 and 12, respectively. If the areas of the triangles  $APB$  and  $CPD$  are equal, then the area of triangle  $APB$  is  
(a) 12 (b) 18  
(c) 15 (d) 16
25. Two circles of radius 1 cm touch at point  $P$ . A third circle is drawn through the points  $A$ ,  $B$  and  $C$  such that  $PA$  is the diameter of the first circle and  $BC$  perpendicular to  $AP$  is the diameter of the third circle. The radius of the third circle in cm.

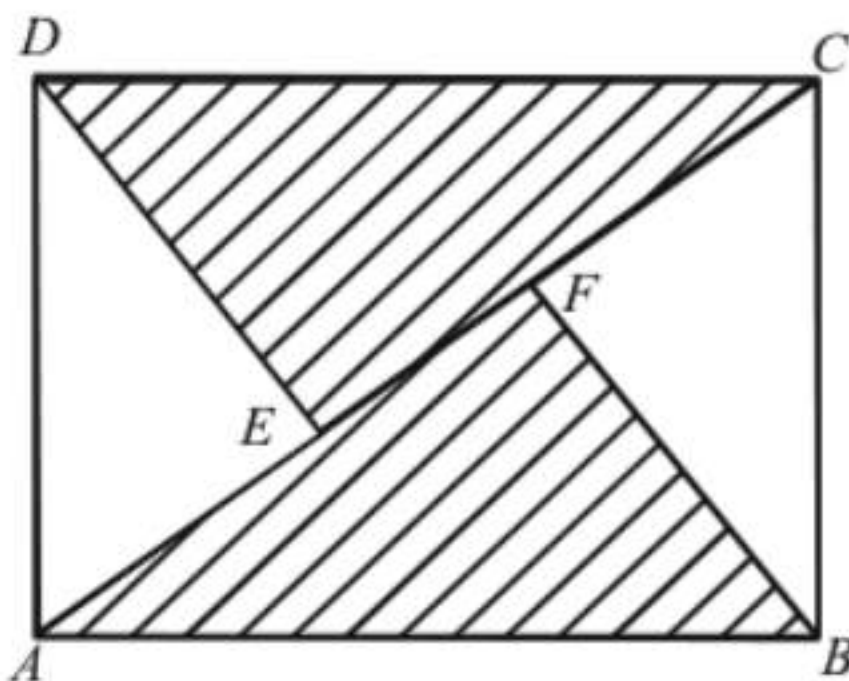
- (a)  $\frac{9}{5}$  (b)  $\frac{7}{4}$   
(c)  $\frac{\sqrt{10}}{2}$  (d) 2



26. A toy is in the shape of a right circular cylinder with a hemisphere on one end and a cone on the other. The height and radius of the cylindrical part are 13 cm and 5 cm respectively. The radii of the hemispherical and conical parts are the same as that of the cylindrical part. Calculate the surface area of the toy if the height of conical part is 12 cm.
- (a)  $1440 \text{ cm}^2$  (b)  $385 \text{ cm}^2$   
(c)  $1580 \text{ cm}^2$  (d)  $770 \text{ cm}^2$
27. A square hole of cross-sectional area  $4 \text{ cm}^2$  is drilled across a cube with its length parallel to a side of the cube. If an edge of the cube measures 5 cm, what is the total surface area of the body so formed?
- (a)  $158 \text{ cm}^2$  (b)  $190 \text{ cm}^2$   
(c)  $166 \text{ cm}^2$  (d)  $182 \text{ cm}^2$
28. In the equilateral triangle  $ABC$ ,  $AD = DE = BE$ ,  $D$  and  $E$  lies on the  $AB$ . If each side of the triangle (i.e.,  $AB$ ,  $BC$  and  $AC$ ) be 6 cm, then the area of the shaded region is:

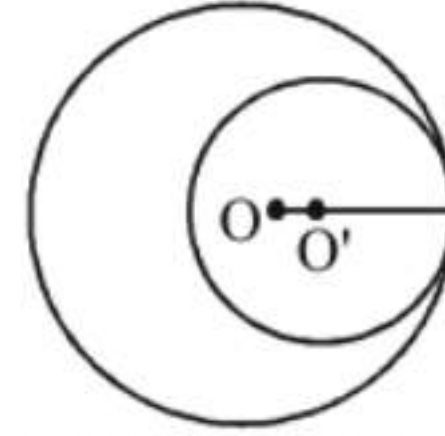


- (a)  $9 \text{ cm}^2$  (b)  $6\sqrt{3} \text{ cm}^2$   
(c)  $5\sqrt{3} \text{ cm}^2$  (d) None of these
29.  $ABCD$  is a rectangle of dimensions  $6 \text{ cm} \times 8 \text{ cm}$ .  $DE$  and  $BF$  are the perpendiculars drawn on the diagonal of the rectangle. What is the ratio of the shaded to that of unshaded region?



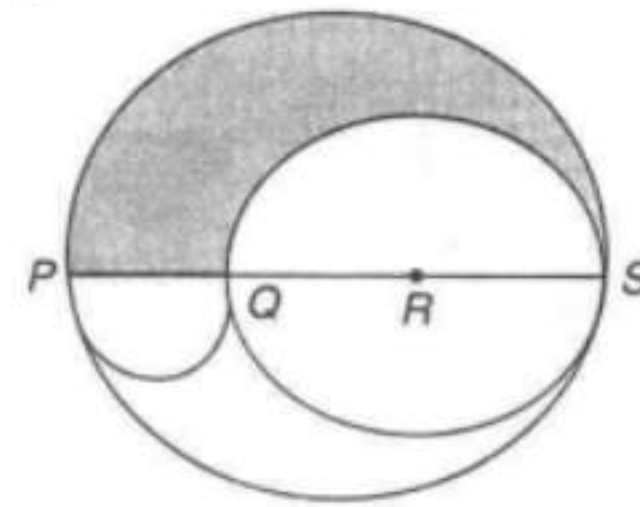
- (a)  $7 : 3$  (b)  $16 : 9$   
(c)  $4 : 3\sqrt{2}$  (d) Data insufficient

30. Two circles touch internally and their centres are  $O$  and  $O'$  as shown. The sum of their areas is  $180\pi \text{ sq. cm.}$  and the distance between their centres is 6 cm.



What is the diameter of the larger circle ?

- (a) 16 cm (b) 12 cm  
(c) 18 cm (d) 24 cm
31. PQRS is the diameter of a circle of radius 6 cm. The lengths PQ, QR and RS are equal. Semi-circles are drawn with PQ and QS as diameters as shown in the figure alongside. Find the ratio of the area of the shaded region to that of the unshaded region.



- (a) 1 : 2 (b) 25 : 121  
(c) 5 : 18 (d) 5 : 13
32. The area of a square is 1444 square meters. The breadth of a rectangle is  $\frac{1}{4}$ th the side of the square and the length of the rectangle is thrice the breadth. What is the difference between the area of the square and the area of the rectangle? [IBPS-PO-2012]
- (a) 1152.38 sq.mtr. (b) 1169.33 sq.mtr  
(c) 1181.21 sq.mtr. (d) 1173.25 sq.mtr  
(e) None of these
33. The length of the circum-radius of a triangle having sides of lengths 12 cm, 16 cm and 20 cm is [SSC CGL-2012]
- (a) 15 cm (b) 10 cm  
(c) 18 cm (d) 16 cm
34.  $ABC$  is a triangle. The medians  $CD$  and  $BE$  intersect each other at  $O$ . Then  $\Delta ODE : \Delta ABC$  is [SSC CGL-2012]
- (a) 1 : 3 (b) 1 : 4  
(c) 1 : 6 (d) 1 : 12
35. If  $P$ ,  $R$ ,  $T$  are the area of a parallelogram, a rhombus and a triangle standing on the same base and between the same parallels, which of the following is true? [SSC CGL-2012]
- (a)  $R < P < T$  (b)  $P > R > T$   
(c)  $R = P = T$  (d)  $R = P = 2T$
36.  $AB$  is a diameter of the circumcircle of  $\Delta APB$ ;  $N$  is the foot of the perpendicular drawn from the point  $P$  on  $AB$ . If  $AP = 8 \text{ cm}$  and  $BP = 6 \text{ cm}$ , then the length of  $BN$  is [SSC CGL-2012]

- (a) 3.6 cm (b) 3 cm  
(c) 3.4 cm (d) 3.5 cm



37. Two circles with same radius  $r$  intersect each other and one passes through the centre of the other. Then the length of the common chord is [SSC CGL-2012]  
 (a)  $r$  (b)  $\sqrt{3}r$   
 (c)  $\frac{\sqrt{3}}{2}r$  (d)  $\sqrt{5}r$
38. The bisector of  $\angle A$  of  $\triangle ABC$  cuts  $BC$  at  $D$  and the circumcircle of the triangle at  $E$ . Then [SSC CGL-2012]  
 (a)  $AB : AC = BD : DC$   
 (b)  $AD : AC = AE : AB$   
 (c)  $AB : AD = AC : AE$   
 (d)  $AB : AD = AE : AC$
39. A metal pipe of negligible thickness has radius 21 cm and length 90 cm. The outer curved surface area of the pipe in square cm is [SSC CGL-2012]  
 (a) 11880 (b) 11680  
 (c) 11480 (d) 10080
40. If  $D$  is the mid-point of the side  $BC$  of  $\triangle ABC$  and the area of  $\triangle ABD$  is  $16 \text{ cm}^2$ , then the area of  $\triangle ABC$  is [SSC CGL-2012]  
 (a)  $16 \text{ cm}^2$  (b)  $24 \text{ cm}^2$   
 (c)  $32 \text{ cm}^2$  (d)  $48 \text{ cm}^2$
41. If the inradius of a triangle with perimeter 32 cm is 6 cm, then the area of the triangle in sq. cm is [SSC CGL-2013]  
 (a) 48 (b) 100  
 (c) 64 (d) 96
42. If the diagonal of a square is doubled, then its area will be [SSC CGL-2013]  
 (a) three times (b) four times  
 (c) same (d) None of these
43. A square is inscribed in a circle of radius 8 cm. The area of the square is [SSC CGL-2013]  
 (a) 16 square cm (b) 64 square cm  
 (c) 128 square cm (d) 148 square cm
44. The biggest possible circle is inscribed in a rectangle of length 16 cm and breadth 6 cm. Then its area is [SSC CGL-2013]  
 (a)  $3\pi \text{ cm}^2$  (b)  $4\pi \text{ cm}^2$   
 (c)  $5\pi \text{ cm}^2$  (d)  $9\pi \text{ cm}^2$
45. The base of a right pyramid is an equilateral triangle of side 4 cm each. Each slant edge is 5 cm long. The volume of the pyramid is [SSC CGL-2014]  
 (a)  $\frac{4\sqrt{8}}{3} \text{ cm}^3$  (b)  $\frac{4\sqrt{60}}{3} \text{ cm}^3$   
 (c)  $\frac{4\sqrt{59}}{3} \text{ cm}^3$  (d)  $\frac{4\sqrt{61}}{3} \text{ cm}^3$
46. There are two cones. The curved surface area of one is twice that of the other. The slant height of the latter is twice that of the former. The ratio of their radii is [SSC CGL-2014]  
 (a) 4 : 1 (b) 4 : 3  
 (c) 3 : 4 (d) 1 : 4
47. In a quadrilateral  $ABCD$ , the bisectors of  $\angle A$  and  $\angle B$  meet at  $O$ . If  $\angle C = 70^\circ$  and  $\angle D = 130^\circ$ , then measure of  $\angle AOB$  is [SSC CGL-2014]  
 (a)  $40^\circ$  (b)  $60^\circ$   
 (c)  $80^\circ$  (d)  $100^\circ$
48. In  $\triangle ABC$ ,  $E$  and  $D$  are points on sides  $AB$  and  $AC$  respectively such that  $\angle ABC = \angle ADE$ . If  $AE = 3 \text{ cm}$ ,  $AD = 2 \text{ cm}$  and  $EB = 2 \text{ cm}$ , then length of  $DC$  is [SSC CGL-2014]  
 (a) 4 cm (b) 4.5 cm  
 (c) 5.0 cm (d) 5.5 cm
49. In a circle with centre  $O$ ,  $AB$  is a chord, and  $AP$  is a tangent to the circle. If  $\angle AOB = 140^\circ$ , then the measure of  $\angle PAB$  is [SSC CGL-2014]  
 (a)  $35^\circ$  (b)  $55^\circ$   
 (c)  $70^\circ$  (d)  $75^\circ$
50. In  $\triangle ABC$ ,  $\angle A < \angle B$ . The altitude to the base divides vertex angle  $C$  into two parts  $C_1$  and  $C_2$ , with  $C_2$  adjacent to  $BC$ . Then [SSC CGL-2014]  
 (a)  $C_1 + C_2 = A + B$  (b)  $C_1 - C_2 = A - B$   
 (c)  $C_1 - C_2 = B - A$  (d)  $C_1 + C_2 = B - A$
51. If  $O$  is the in-centre of  $\triangle ABC$ ; if  $\angle BOC = 120^\circ$ , then the measure of  $\angle BAC$  is [SSC CGL-2014]  
 (a)  $30^\circ$  (b)  $60^\circ$   
 (c)  $150^\circ$  (d)  $75^\circ$
52. Two parallel chords of a circle of diameter 20 cm are 12 cm and 16 cm long. If the chords are in the same side of the centre, then the distance between them is [SSC CGL-2014]  
 (a) 28 cm (b) 2 cm  
 (c) 4 cm (d) 8 cm
53. The interior angle of a regular polygon is  $140^\circ$ . The number of sides of that polygon is [SSC CGL-2014]  
 (a) 9 (b) 8  
 (c) 7 (d) 6
54. If two circles of radii 9 cm and 4 cm touch externally, then the length of a common tangent is [SSC CGL-2014]  
 (a) 5 cm (b) 7 cm  
 (c) 8 cm (d) 12 cm
55. A wire is bent into the form of a circle, whose area is  $154 \text{ cm}^2$ . If the same wire is bent into the form of an equilateral triangle, the approximate area of the equilateral triangle is [SSC CGL-2014]  
 (a)  $93.14 \text{ cm}^2$  (b)  $90.14 \text{ cm}^2$   
 (c)  $83.14 \text{ cm}^2$  (d)  $39.14 \text{ cm}^2$
56. The length of a rectangle is increased by 15% and breadth decreased by 15%. Then the area of the new rectangle is [SSC CGL-2014]  
 (a) unchanged (b) increased by 2.25%  
 (c) decreased by 2.25% (d) increased by 15%