EXERCISE # 1

Q.1 Find the circumference and area of a circle of radius 4.2 cm.

Q.2 Find the circumference of a circle whose area is 301.84 cm^2.

Q.3 Find the area of a circle whose circumference is 44 cm.

Q.4 The circumference of a circle exceeds the diameter by 16.8 cm. Find the circumference of the circle.

Q.5 A horse is tied to a pole with 28 m long string. Find the area where the horse can graze. (Take $\pi = 22/7$).

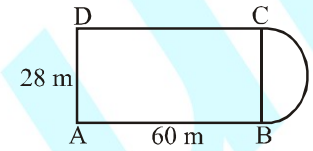
Q.6 A steel wire when bent in the form of a square encloses an area of 121 cm^2. If the same wire is bent in the form of a circle, find the area of the circle.

Q.7 A sector of a circle of radius 4 cm contains an angle of 30º. Find the area of the sector.

Q.8 A sector of a circle of radius 8 cm contains an angle of 135º. Find the area of the sector.

Q.9 The area of a sector of a circle of radius 2 cm is π cm^2. Find the angle contained by the sector.

Q.10 A plot is in the form of a rectangle ABCD having semi-circle on BC as shown in Fig. If AB = 60 m and BC = 28 m, find the area of the plot.

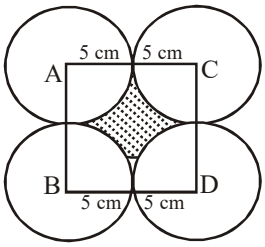


Q.11 A play ground has the shape of a rectangle, with two semi-circles on its smaller sides as diameters, added to its outside. If the sides of the rectangle are 36 m and 24.5 m, find the area of the playground. (Take $\pi = 22/7$).

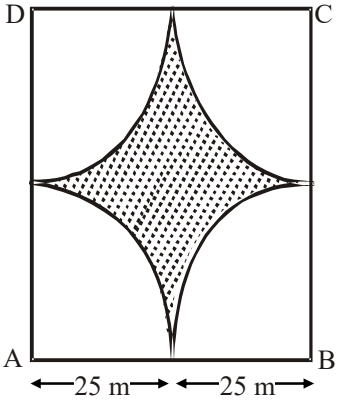
Q.12 The outer circumference of a circular race-track is 528 m. The track is everywhere 14m wide. Calculate the cost of levelling the track at the rate of 50 paise per square metre (Use $\pi = 22/7$).

Q.13 A rectangular piece is 20 m long and 15 m wide. From its four corners, quadrants of radii 3.5 m have been cut. Find the area of the remaining part.

Q.14 Four equal circles, each of radius 5 cm, touch each other as shown in Fig. Find the area included between them (Take $\pi = 3.14$).



Q.15 Four cows are tethered at four corners of a square plot of side 50 m, so that they just cannot reach one another. What area will be left ungrazed ?



Q.16 The circumference of two circles are in the ratio 2 : 3. Find the ratio of their areas.

Q.17 The side of a square is 10 cm. Find the area of circumscribed and inscribed circles.

Q.18 The sum of the radii of two circles is 140 cm and the difference of their circumferences is 88 cm. Find the diameters of the circles.

Q.19 The area of a circle inscribed in an equilateral triangle is 154 cm^2. Find the perimeter of the triangle. [Use $\pi = 22/7$ and $\sqrt{3} = 1.73$]

Q.20 A field is in the form of a circle. A fence is to be erected around the field. The cost of fencing would be ₹ 2640 at the rate of ₹ 12 per metre. Then, the field is to be thoroughly ploughed at the cost of ₹ 0.50 per m^2. What is the amount required to plough the field ? [Take $\pi = 22/7$].

Q.21 If a square is inscribed in a circle, find the ratio of the areas of the circle and the square.

Q.22 A park is in the form of a rectangle 120m × 100 m. At the centre of the park there is a circular lawn. The area of park excluding lawn is 8700 m^2. Find the radius of the circular lawn. (Use $\pi = 22/7$)

Q.23 The radii of two circles are 8 cm and 6 cm respectively. Find the radius of the circle having its area equal to the sum of the areas of the two circles.

Q.24 The radii of two circles are 19 cm and 9 cm respectively. Find the radius and area of the circle which has its circumference equal to the sum of the circumferences of the two circles.

Q.25 A car travels 1 kilometre distance in which each wheel makes 450 complete revolutions. Find the radius of the its wheels.

Q.26 The area of enclosed between two concentric circles is 770 cm^2. If the radius of the outer circle is 21 cm, find the radius of the inner circle.

Q.27 Find, in terms of π, the length of the arc that subtends an angle of 30º at the centre of a circle of radius 4 cm.

Q.28 Find the angle subtended at the centre of a circle of radius 5 cm by an arc of length $(5\pi/3)$ cm.

Q.29 An arc of length 20π cm subtends an angle of 144° at the centre of a circle. Find in terms of π, the radius of the circle.

Q.30 An arc of length 15 cm subtends an angle of 45° at the centre of a circle. Find the radius of the circle.

Q.31 Find the angle subtended at the centre of a circle of radius 'a' by an arc of length $(a\pi/4)$ cm.

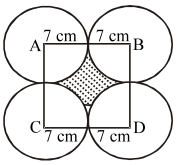
Q.32 A chord AB of a circle of radius 15 cm makes an angle of 60° at the centre of the circle. Find the area of the major and minor segment.
(Take $\pi = 3.14$, $\sqrt{3} = 1.73$)

Q.33 In a circle of radius 21 cm, an arc subtends an angle of 60° at the centre. Find:
(i) length of the arc
(ii) area of the sector formed by the arc
(iii) area of the segment formed by the corresponding chord of the arc.

Q.34 A chord of a circle of radius 10 cm subtends a right angle at the centre. Find:
(i) area of the minor sector
(ii) area of the minor segment
(iii) area of the major sector
(iv) area of the major segment (Use $\pi = 3.14$)

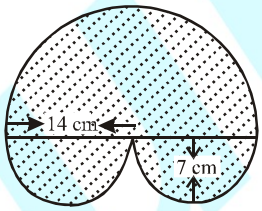
Q.35 A circular grassy plot of land, 42 m in diameter, has a path 3.5 m wide running round it on the outside. Find the cost of gravelling the path at ₹4 per square metre.

Q.36 Four equal circles are described about the four corners of a square so that each touches two of the others as shown in Fig. Find the area of the shaded region, each side of the square measuring 14 cm.



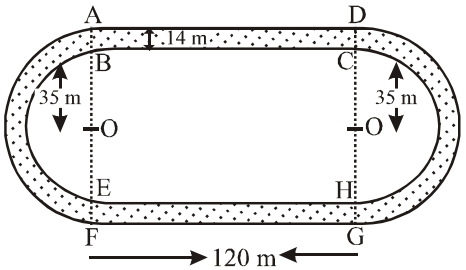
Q.37 Find to the three places of decimals the radius of the circle whose area is the sum of the areas of two triangles whose sides are 35, 53, 66 and 33, 56, 65 measured in centimetres.

Q.38 Find the areas of the shaded region in the Fig.

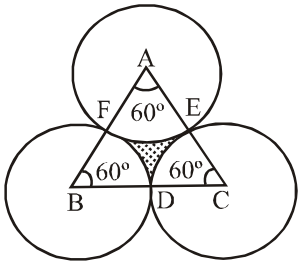


Q.39 In an equilateral triangle of side 24 cm, a circle is inscribed touching its sides. Find the area of the remaining portion of the triangle (Take $\sqrt{3} = 1.732$).

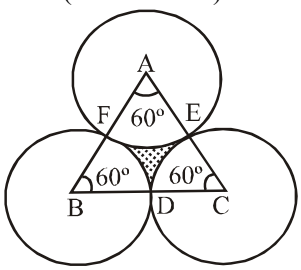
Q.40 An athletic track 14 m wide consists of two straight sections 120 m long joining semi-circular ends whose inner radius is 35 m. Calculate the area of the shaded region.



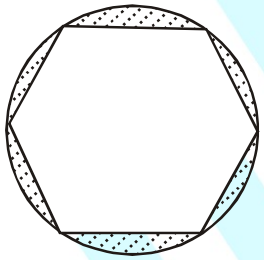
Q.41 The area of an equilateral triangle is $49\sqrt{3}$ cm^2. Taking each angular point as centre, a circle is described with radius equal to half the length of the side of the triangle as shown in Fig. Find the area of the triangle not included in the circle.



Q.42 The area of an equilateral triangle is 1732.05 cm^2. About each angular point as centre, a circle is described with radius equal to half the length of the side of the triangle. Find the area of the triangle not included in the circles (Use $\pi = 3.14$)



Q.43 A round table cover has six equal designs as shown in Fig. If the radius of the cover is 28 cm, find the cost of making the designs at the rate of ₹3.50 per cm^2. (Use $\sqrt{3} = 1.7$)



Answer Key

1. 26.4 cm, 55.44 cm^2 **2.** 61.6 cm **3.** 154 cm^2 **4.** 24.64 cm **5.** 2464 m^2

6. 154 cm^2 **7.** cm^2 **8.** 24 π cm^2 **9.** 90° **10.** 1988 m^2

11. 1353.625 m^2 **12.** ₹ 3388 **13.** 261.5 m^2 **14.** 21.5 m^2 **15.** 535.71 m^2

16. 4 : 9 **17.** 157m^2, 78.5 m^2 **18.** 154 cm, 126 cm **19.** 72.7 cm **20.** ₹ 1925

21. π : 2 **22.** 21. 41m **23.** 10 cm **24.** 28 cm, 2464 cm^2 **25.** 35.35 cm

26. 14 cm **27.** cm **28.** 60° **29.** 25 cm **30.** cm

31. 45° **32.** 20.295 cm^2 , 686.205 cm^2

33. (i) 22cm (ii) 231 cm^2 (iii) 40.05 cm^2

34. (i) 78.5cm^2 (ii) 28.5cm^2 (iii) 235.5cm^2 (iv) 285.5 cm^2 **35.** 500.5 m^2 **36.** 154 cm^2

37. 14 cm **38.** 462 cm^2 **39.** 98.55 cm^2 **40.** 7056 m^2 **41.** 7.77 cm^2

42. 162. 01 cm^2 **43.** ₹ 1626.80

EXERCISE # 2

Q.1 Find the circumference and the area of a circle of diameter 35 cm.

Q.2 The circumference of a circle is 39.6 cm. Find its area.

Q.3 The area of a circle is 301.84 cm^2. Find its circumference.

Q.4 A wire when bent in the form of an equilateral triangle encloses an area of $121\sqrt{3}$ cm^2. The same wire is bent to form a circle. Find the area enclosed by the circle.

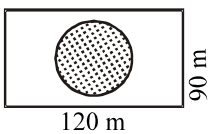
Q.5 The length of a chain used as the boundary of a semicircular park is 90 m. Find the area of the park.

Q.6 The sum of the radii of two circles is 7 cm, and the difference of their circumferences is 8 cm. Find the circumferences of the circles.

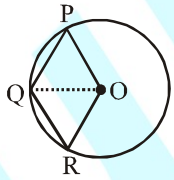
Q.7 Find the area of a ring whose outer and inner radii are respectively 23 cm and 12 cm.

Q.8 A path of 8 m width runs around the outside of a circular park whose radius is 17 m. Find the area of the path.

Q.9 A park is in the form of a rectangle 120 m by 90 m. At the centre of the park there is a circular lawn as shown in the figure. The area of the park excluding the lawn is 2950 m^2. Find the radius of the circular lawn. (Given: $\pi = 3.14$)



Q.10 In the given figure, OPQR is a rhombus, three of whose vertices lie on a circle with centre O. If the area of the rhombus is $32\sqrt{3}$ cm^2, find the radius of the circle.



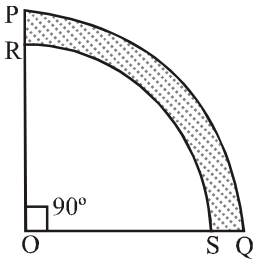
Q.11 Find the area of a quadrant of a circle whose circumference is 22 cm.

Q.12 A horse is placed for grazing inside a rectangular field 70 m by 52 m. It is tethered to one corner by a rope 21 m long. On how much area can it graze ? How much area is left ungrazed ?

Q.13 A horse is tethered to one corner of a field which is in the shape of an equilateral triangle of side 12 m. If the length of the rope is 7 m, find the area of the field which the horse cannot graze. Take $\sqrt{3}$ = 1.732. Write the answer correct to 2 places of decimal.

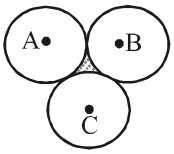
Q.14 Four cows are tethered at the four corners of a square field of side 50 m such that each can graze the maximum unshared area. What area will be left ungrazed ? Take $\pi = 3.14$.

Q.15 In the given figure, PQSR represents a flower bed. If OP = 21 m and OR = 14 m, find the area of the flower bed.



Q.16 Three equal circles, each of radius 6 cm, touch one another as shown in the figure. Find the area enclosed between them.

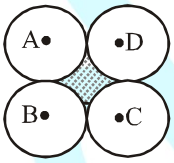
Take $\pi = 3.14$ and $\sqrt{3} = 1.732$.



Q.17 If three circles of radius a each, are drawn such that each touches the other two, then find the area included between them.

(Take $\pi = 3.14$ and $\sqrt{3} = 1.732$)

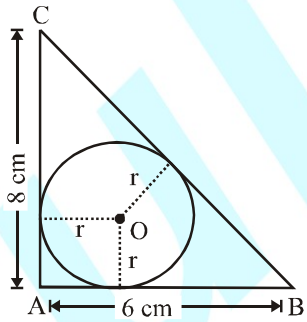
Q.18 Four equal circles, each of radius 5 cm, touch each other, as shown in the figure. Find the area included between them. Take $\pi = 3.14$.



Q.19 Four equal circles, each of radius a units, touch each other. Find the area between them.

Q.20 A rope by which a cow is tethered is increased from 16 m to 23 m. How much additional ground does it have now to graze ?

Q.21 In the given figure, ΔABC is right angled at A, with AB = 6 cm and AC = 8 cm. A circle with centre O had been inscribed inside the triangle. Find the value of r the radius of the inscribed circle.



Q.22 A pendulum swings through an angle of 30° and describes an arc 8.8 cm in length. Find the length of the pendulum.

Q.23 A circular disc of radius 6 cm is divided into three sectors with central angles 90° , 120° and 150°. What part of the whole circle is the sector with central angle 150°? Also, calculate the ratio of the areas of the three sectors.

Answer Key

1. 110 cm, 962.5 cm^2 **2.** 134.74 cm^2 **3.** 61.6 cm **4.** 346.5 cm^2

5. 481.25 cm^2 **6.** 26 cm, 18 cm **7.** 1210 cm^2 **8.** 1056 m^2

9. 50 m **10.** 8 cm **11.** 9.625 cm^2 **12.** 346.5 m^2, 3293.5 m^2

13. 36.69 m^2 **14.** 537.5 m^2 **15.** 192.5 m^2 **16.** 5.76 cm^2

17. $\frac{4}{25}a^2$ **18.** 21.5 cm^2 **19.** $\frac{6}{7}a^2$ **20.** 858 m^2

21. r = 2 cm **22.** 16.8 cm **23.** 5/12; 3 : 4 : 5