



MATHS

NCERT - NCERT Mathematics(English)

PERIMETER AND AREA

Solved Examples

1. What is the circumference of a circle of diameter 10 cm. (Take $\pi = 3.14$)



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2. What is the circumference of a circular disc of radius 14 cm? (Take $\pi = \frac{22}{7}$)

A. 90cm

B. 86cm

C. 92cm

D. 88cm

Answer: D



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3. Find BC , if the area of the triangle ABC is 36cm^2 and the height AD is 3cm (Fig 11.21)



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4.

In

ΔPQR , $PR = 8\text{cm}$, $QR = 4\text{cm}$ and $PL = 5\text{cm}$

(Fig 11.22). Find: (i) the area of the ΔPQR (ii)

QM



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5. Sudhanshu divides a circular disc of radius 7cm in two equal parts. What is the perimeter of each semicircular shape disc ? (Use $\pi = \frac{22}{7}$)



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6. Find the area of a circle of radius 30cm (use $\pi = 3.14$)



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7. The radius of a circular pipe is 10cm . What length of a tape is required to wrap once around the pipe ($\pi = 3.14$) ?



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8. Find the perimeter of the given shape (Fig 11.32) (Take $\frac{\pi}{22} / 7$)



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9. Diameter of a circular garden is 9.8 m. Find its area.

A. $75.46m^2$

B. $74.46m^2$

C. $72.46m^2$

D. $73.46m^2$

Answer: A



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10. The adjoining figure shows two circles with the same centre. The radius of the larger circle is 10 cm and the radius of the smaller circle is 4 cm. Find:

(a) the area of the larger circle

(b) the area of the smaller circle

(c) the shaded area between two circles ($\pi=3.14$)



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11. Two cross roads, each of width 5 m, run at right angles through the centre of a rectangular park of length 70 m and breadth 45 m and parallel to its sides. Find the area of the roads. Also find the cost of constructing the roads at the rate of Rs 105 per m^2 .



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12. A path 5 m wide runs along inside a square park of side $100m$. Find the area of the path.

Also find the cost of cementing it at the rate of $Rs250$ per $10m^2$.



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13. A rectangular park is 45 m long and 30 m wide. A path 2.5 m wide is constructed outside the park. Find the area of the path.



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14. A door-frame of dimensions $3m \times 2m$ fixed on the wall imension $10m \times 10m$. Find the total labour charges for painting the wall if the labour charges for painting $1m_2$ of the wall is $Rs2.50$.



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15. Anu wants to fence the garden in front of her house (Fig 11.5), on three sides with lengths 20 m, 12 m and 12 m. Find the cost of fencing at the rate of Rs 150 per metre



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16. The area of a rectangular sheet is 500cm^2 .

If the length of the sheet is 25cm , what is its width? Also find the perimeter of the rectangular sheet.



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17. The area of a square and a rectangle are equal. If the side of the square is 40 cm and the

breadth of the rectangle is 25 cm, find the length of the rectangle. Also, find the perimeter of the rectangle.



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18. A wire is in the shape of a square of side 10 cm. If the wire is rebent into a rectangle of length 12 cm, find its breadth. Which encloses more area, the square or the rectangle?



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19. Find the height 'x' if the area of the parallelogram is 24cm^2 and the base is 4 cm.



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20. One of the sides and the corresponding height of a parallelogram are 4 cm and 3 cm respectively. Find the area of the parallelogram (Fig 11.17).



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21. Find the area of the following triangles (Fig 11.20).



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22. The two sides of the parallelogram ABCD are 6 cm and 4 cm. The height corresponding to the base CD is 3 cm (Fig 11.19). Find the (i) area of the parallelogram. (ii) the height corresponding to the base AD.



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Exercise 11 1

1. The perimeter of a rectangular sheet is 100 cm. If the length is 35 cm, find its breadth. Also find the area



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2. A door of length 2 m and breadth 1 m is fitted in a wall. The length of the wall is 4.5 m and the breadth is 3.6 m . Find the cost of

white washing the wall, if the rate of white washing the wall is $Rs\ 20$ per m^2 .



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3. The area of a square park is the same as of a rectangular park. If the side of the square park is 60 m and the length of the rectangular park is 90 m, find the breadth of the rectangular park.



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4. Find the area of a square park whose perimeter is 320 m.



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5. A wire is in the shape of a rectangle. Its length is 40 cm and breadth is 22 cm. If the same wire is rebent in the shape of a square, what will be the measure of each side? Also find which shape encloses more area?



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6. Find the breadth of a rectangular plot of land, if its area is $440m^2$ and the length is $22m$. Also find its perimeter



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7. The length and the breadth of a rectangular piece of land are 500 m and 300 m respectively. Find (i) its area (ii) the cost of the land, if 1 m² of the land costs Rs 10,000.



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8. The perimeter of a rectangle is 130 cm. If the breadth of the rectangle is 30 cm, find its length. Also find the area of the rectangle.



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Exercise 11 4

1. A verandah of width 2.25 m is constructed all along outside a room which is 5.5 m long and 4 m wide. Find:(i) the area of the verandah.(ii)

the cost of cementing the floor of the verandah at the rate of Rs 200 per m².



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2. A garden is 90 m long and 75 m broad. A path 5 m wide is to be built outside and around it. Find the area of the path. Also find the area of the garden in hectare.



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3. A picture is painted on a cardboard 8 cm long and 5 cm wide such that there is a margin of 1.5 cm along each of its sides. Find the total area of the margin.



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4. A 3 m wide path runs outside and around a rectangular park of length 125 m and breadth 65 m. Find the area of the path



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5. A path $1m$ wide is built along the border and inside a square garden of side $30m$. Find:
(i) the area of the path (ii) the cost of planting grass in the remaining portion of the garden at the rate of $Rs40$ per m^2



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6. Through a rectangular field of length $90 m$ and breadth $60 m$, two roads are constructed which are parallel to the sides and cut each

other at right angles through the centre of the fields. If the width of each road is 3 m , find (i) the area covered by the roads. (ii) the cost of constructing the roads at the rate of $\text{Rs } 110$ per m^2 .



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7. Two cross roads, each of width 10 m , cut at right angles through the centre of a rectangular park of length 700 m and breadth 300 m and parallel to its sides. Find the area of

the roads. Also find the area of the park excluding cross roads. Give the answer in hectares.



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8. The adjoining figure represents a rectangular lawn with a circular flower bed in the middle. Find:

- (i) the area of the whole land
- (ii) the area of the flower bed
- (iii) the area of the lawn excluding the area of

the flower bed

(iv) the circumference of the flower bed.



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Exercise 11 3

1. How many times a wheel of radius 28 cm must rotate to go 352 m? (Take $\pi = \frac{22}{7}$)

A. 100

B. 300

C. 200

D. 400

Answer: C



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2. The minute hand of a circular clock is 15cm long. How far does the tip of the minute hand move in 1 hour. (Take $\pi = 3.14$)



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3. Find the circumference of the inner and the outer circles, shown in the adjoining figure ?

(Take $\pi = 3.14$)



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4. A circular flower garden has an area of $314m^2$. A sprinkler at the centre of the garden can cover an area that has a radius of $12m$.

Will the sprinkler water th entire garden ?

(Take $p\pi = 3.14$)



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5. A circular flower bed is surrounded by a path $4m$ wide. The diameter of the flower bed is $66m$. What is the area of this path ?

$(\pi = 3.14)$



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6. The circumference of a circle is $31.4cm$. Find the radius and the area of the circle ? (Take

$\pi = 3.14$)



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7. From a circular card sheet of radius 14cm , two circles of radius 3.5cm and a rectangle of length 3cm and breadth 1cm are removed. (as shown in the adjoining figure). Find the area of the remaining sheet. (Take $\pi = \frac{22}{7}$)



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8. A circle of radius 2cm is cut out from a square piece of an aluminum sheet of side 6cm . What is the area of the left over aluminum sheet ? (Take $\pi = 3.14$)



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9. Find the perimeter of the adjoining figure, which is a semicircle including its diameter



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10. Find the circumference of the circles with the following radius: (Take $\frac{22}{7}$) (a) 14cm (b) 28mm (c) 21cm



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11. Find the area of the following circles, given that:(a) radius = 14 mm (Take $\pi = 227$) (b) diameter = 49 m (c) radius = 5 cm



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12. If the circumference of a sheet is $154m$, find its radius. Also find the area of the sheet.

(take $p = \frac{22}{7}$)



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13. A gardener wants to fence a circular garden of diameter $21m$. Find the length of the rope he needs to purchase, if he makes 2 rounds of fence. Also find the costs of the rope, if it cost

Rs 4 per meter. (take $\pi = \frac{22}{7}$)

A. 550 rs

B. 500 rs

C. 528 rs

D. 510 rs

Answer: C



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14. 6). From a circular sheet of radius 4 cm, a circle of radius 3 cm is removed. Find the area of the remaining sheet. (take $\pi = \frac{22}{7}$)

(7).Saima wants to put a lace on the edge of a circular table cover of diameter 1.5 m. Find the length of the lace required and also find its cost if one meter of the lace costs ₹15.(take

$$\pi = \frac{22}{7})$$



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15. Saima wants to put a lace on the edge of a circular table cover of diameter 1.5 m. Find the length of the lace required and also find its

cost if one meter of the lace costs $Rs15$. (take

$\pi = 3.14$)



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16. Find the cost of polishing a circular table-top of diameter $1.6m$, if The rate of polishing is $Rs\ 15\ per\ m^2$ (take $\pi = 3.14$)



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17. Shazli took a wire of length 44 cm and bent it into the shape of a circle. Find the radius of that circle. Also find its area. If the same wire is bent into the shape of a square, what will be the length of each of its sides? Which figure encloses more area, the circle or the square?

(Take $\pi = \frac{22}{7}$)



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Exercise 11 2

1. $\triangle ABC$ is right angled at A (Fig 11.25). AD is perpendicular to BC . If $AB = 5\text{cm}$, $BC = 13$ and, find the area of $\triangle ABC$ Also find the length of AD .



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2. DL and BM are the height on sides AB and AD respectively of parallelogram $ABCD$. If the area of the parallelogram is 1470 cm^2 , $AB = 35\text{ cm}$ and $AD = 49\text{ cm}$ find the BM and DL .

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3. $PQRS$ is a parallelogram (*Fig11.23*). QM is the height from Q to SR and QN is the height from Q to PS . If $SR = 12\text{cm}$ and $QM = 8\text{cm}$. Find :

(a) the area of the parallelogram $PQRS$ (b) QN , if $PS = 8\text{cm}$

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4. Find the missing values:



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5. Find the missing values:



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6. Find the area of each of the following triangles:



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7. Find the area of each of the following parallelograms:



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8. $\triangle ABC$ is isosceles with $AB = AC = 7.5\text{cm}$ and $BC = 9\text{cm}$. The height AD from A to BC is 6cm . Find the area of $\triangle ABC$. What will be the height from C to AB , CE



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