# Mensuration (2-D)

**Total Time: 150 mins**

**Practise Exercise no. 1**

<table>
<thead>
<tr>
<th>Question</th>
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<th>Total no. Of Qs: 83</th>
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<tbody>
<tr>
<td>Q1. If the area of a triangle with base $x$ is equal to the area of a square with side $x$, then the altitude of the triangle is:</td>
<td>a) $x/2$ b) $x$ c) $2x$ d) $3x$</td>
<td>a) less than Rs 300 b) less than Rs 400 c) more than Rs 500 d) more than Rs 600</td>
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<td>Q2. If the area of a triangle is 150 sq m and base: height is 3: 4 find its height and base</td>
<td>a) 20m, 15m b) 30m, 10m c) 60m, 5m d) Data inadequate</td>
<td>Q8. The width of rectangular hall is $3\sqrt{3}$ of its length. If the area of hall is 300 sq m, then the difference between its length and width is: a) $3m$ b) $4m$ c) $5m$ d) $15m$</td>
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<td>Q3. If the sides of triangle are doubled, its area</td>
<td>a) Remains same b) becomes doubles c) Becomes 3 times d) becomes 4 times.</td>
<td>Q9. A room 8m x 6m is to be carpeted by a carpet 2m wide. The length of carpet required is. a) 12m b) 36m c) 24m d) 48m</td>
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<td>Q4. Each side of an equilateral triangle is increased by 1.5%. The percentage increase in its area is:</td>
<td>a) 1.5% b) 3% c) 4.5% d) 5.7%</td>
<td>Q10. The length of a plot of land is 4 times its breadth. A playground measuring 1200 sq m occupies one-third of the total area of the plot. What is the length of the plot, in metres? a) 90 b) 80 c) 60 d) None of these</td>
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<td>Q5. If the perimeter of an equilateral triangle is 12 metres, find its area.</td>
<td>a) $4\sqrt{3}m^2$ b) $16\sqrt{3}m^2$ c) $8\sqrt{3}m^2$ d) $6m^2$</td>
<td>Q11. If only the length of a rectangular plot is reduced to $2/3$rd of its original area to reduced area is: a) 2:3 b) 3:2 c) 1:2 d) None of these</td>
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<td>Q6. The perimeter of an isosceles triangle is equal to 14cm, the lateral side is to the base in the ratio 5 to 4. The area in cm$^2$, of the triangle is:</td>
<td>a) $\frac{1}{2} \sqrt{21}$ b) $\sqrt{21}$ c) $1\sqrt{21}$ d) $2\sqrt{21}$</td>
<td>Q12. Two roads XY and YZ of 15 metres and 20 metres length respectively are perpendicular to each other. What is the distance between X and Z by the shortest route? a) 35 metres b) 30 metres c) 24 metres d) 25 metres</td>
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<td>Q7. A plot of land is in the shape of a right-angled isosceles triangle. The length of hypotenuse is 50 $\sqrt{2}$ m. the cost of fencing is Rs 3 per metre. The cost of fencing the plot will be:</td>
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Q13. The legs of a right triangle are in the ratio of 1:2 and its area is 36. The hypotenuse of the triangle is:

a) 3
b) $\sqrt{3}$
c) 5
d) $6\sqrt{5}$

Q14. The length of a rectangular plot is 20 metres more than its breadth. If the cost of fencing the plot at the rate of Rs 26.50 per metre is Rs 5300, what is the length of the plot (in metres)?

a) 40
b) 120
c) 50
d) None of these

Q15. The length and breadth of a playground are 36m and 21 m respectively. Flagstaffs are required to be fixed on all along the boundary at a distance 3m apart. The number of flagstaffs will be:

a) 37
b) 38
c) 39
d) 40

Q16. A rectangle is having 15cm as its length and 150sq cm as its area. Its area is increased to 1 1/3 times the original area by increasing only its length. Its new perimeter is:

a) 50cm
b) 60cm
c) 70cm
d) 80cm

Q17. The length and breadth of a rectangular piece of land are in the ratio of 5:3. The owner spent Rs 3000 for surrounding it from all the sides at the rate of Rs 7.50 per metre. The difference between length breadth is:

a) 50m
b) 100m
c) 200m
d) 150m

Q18. A man walked 20m to cross a rectangle field diagonally. If the length of the field is 16 m, the breadth of the field is:

a) 4m
b) 16m
c) 12m
d) Can’t be determined

Q19. A rectangular carpet has an area of 120m$^2$ and a perimeter of 46m. The length of its diagonal is:

a) 15m
b) 16m
c) 17m
d) 20m

Q20. When the length of a rectangular plot is increased by four times its perimeter becomes 480 metres and area 12800 sq m. What was its original length (in metre)?

a) 160
b) 40
c) 20
d) Can’t be determined

Q21. There is a rectangular field of area 120 sq cm. Sum of its diagonal and length is 4 times of its breadth. Find the perimeter of the rectangle.

a) 46m
b) 15m
c) 8m
d) Data inadequate

Q22. The length of a rectangular hall is 16 meters. If it can be partitioned into two equal square rooms, what is the length of the partition?

a) 16m
b) m
c) 4m
d) Data inadequate

Q23. What would be the length of the diagonal of a square plot whose area is equal to the area of a rectangular plot of 45m length and 40m width?

a) 42.5
b) 60m
c) 4800m
d) Data inadequate

Q24. In order to fence a square Manish fixed 48 poles. If the distance between two poles is 5 metres then what will be the area of the square so formed?

a) 2600cm$^2$
b) 2500cm$^2$
c) 3025cm$^2$
d) None of these

Q25. If the ratio of areas of two squares is 9: 1, the ratio of their perimeters is:

a) 9:1
b) 3:4
Q26. A square room is surrounded by a verandah of width 2 metres. Area of the verandah is 72 sq metres. Find the area of the room.

a) 49 sq m  
 b) 64 sq m  
 c) 81 sq m  
 d) 36 sq m

Q27. A square room has a verandah of area 96 sq metres and width 3 metres all round it on its inside. Find the area of the room.

a) 121 sq m  
 b) 132 sq m  
 c) 25 sq m  
 d) Data inadequate

Q28. The area of the four walls of a room is 5940 sq dm and the length is twice the breadth, the height being 33 dm. Find the area of the ceiling.

a) 18 sq m  
 b) 1.8 sq m  
 c) 16 sq m  
 d) 1.6 sq m

Q29. A room is 10.5 metres long and 6.25 metres broad. The cost of papering the walls with paper 1.5 m wide at Rs 24 per metre is Rs 2680. Find the height of the room.

a) 5 metres  
 b) 6 metres  
 c) 8 metres  
 d) 10 metres

Q30. Two square rooms, one a metre longer each way than the other, are of equal height, the cost respectively Rs 33600 and Rs 35280 to paper the walls at Rs 70 per sq m. Find the height.

a) 6m  
 b) 8m  
 c) 5m  
 d) 4m

Q31. Find the area of a parallelogram whose two adjacent sides are 130 metres and 140 metres and one of the diagonals is 150 metres long.

a) 16800 sq m  
 b) 17800 sq m  
 c) 18600 sq m  
 d) Can’t be determined

Q32. A parallelogram has an area of 144 cm². If the distance between its opposite sides are 12 cm and 16 cm. Find the sides of the parallelogram.

a) 12cm, 9cm  
 b) 10cm, 6 cm  
 c) 14 cm, 10 cm  
 d) None of these

Q33. A rhombus of area 96 sq m has one of its diagonals of 12 m. Find the other diagonal and side of the rhombus.

a) 18cm, 30cm  
 b) 18cm, 15cm  
 c) 9cm, 15cm  
 d) Data inadequate

Q34. One side of a rhombus is 10cm and one of its diagonals is 12 cm. The area of the rhombus is:

a) 120cm²  
 b) 60cm²  
 c) 80cm²  
 d) 96cm²

Q35. If the perimeter of a rhombus is 4a and lengths of the diagonals are x and y, then its area is:

a) a(x+y)  
 b) x²+y²  
 c) xy  
 d) 1/2 xy

Q36. In a rhombus whose area is 144 sq cm one of its diagonals is twice as long as the other. The lengths of its diagonals are:

a) 24cm, 48cm  
 b) 12cm, 24cm  
 c) 6√2cm, 12√2cm  
 d) 6cm, 12cm

Q37. The cost of ploughing trapezoid field at the rate of Rs 1.35 per square metre is Rs 421.20. The difference between them in 24 metres and the perpendicular distance between them in 24 metres. Find the length of parallel sides.

a) 17m, 9m  
 b) 28m, 20m  
 c) 34m, 26m  
 d) Can’t be determined

Q38. The two parallel sides of a trapezium measure 58 metres and 42 metres respectively. The other two sides are equal each being 17 metres. Find its area.
a) 570 sq m  

b) 750 sq m  

c) 740 sq m  

d) 760 sq m  

Q39. The perimeter of a semi circle of 56 cm diameter will be:  

a) 144 cm  

b) 232 cm  

c) 154 cm  

d) 116 cm  

Q40. A circular wire of radius 42 cm is cut and bent in the form of a rectangle whose sides are in ratio 6:5. The smaller side of the rectangle is:  

a) 30 cm  

b) 60 cm  

c) 72 cm  

d) 132 cm  

Q41. The length of a rope by which a buffalo must be tethered in order that she may be able to graze an area of 98.56 sq m, is:  

a) 56 m  

b) 64 m  

c) 88 m  

d) 168 m  

Q42. The circumference of a circle is 352 m. Its area is:  

a) 9856 m²  

b) 8956 m²  

c) 6589 m²  

d) 5986 m²  

Q43. If a piece of wire 20 cm long is bent into an arc of a circle subtending an angle of 60° at the centre, then the radius of the circle (in cm) is:  

a) π/120  

b) π/60  

c) 120/π  

d) 60/π  

Q44. From a circular piece of cardboard of radius 3 metres two sectors of 40° have been cut off. Find the area of the remaining portion.  

a) 22 sq m  

b) 44 sq m  

c) 28 sq m  

d) 18 sq m  

Q45. The length and breadth of a rectangular field are 500 m and 250 m respectively. If 2 roads 10 m wide are cut all around it, both on its inside and outside, then the area of the road is:  

a) 1500 sq m  

b) 800 sq m  

c) 1200 sq m  

d) Data Inadequate  

Q46. The length and breadth of a room are 10 m 75 cm and 8 m 25 cm respectively. The floor is to be paved with square tiles of the largest possible size. The size of the tiles is:  

a) 25 cm x 25 cm  

b) 50 cm x 50 cm  

c) 20 cm x 20 cm  

d) 30 cm x 30 cm  

Q47. A rectangular garden has a 5 m wide road outside around all the four sides. The area of the road is 600 square meters. What is the ratio between the length and the breadth of that plot?  

a) 3:2  

b) 4:3  

c) 5:4  

d) Data inadequate  

Q48. A 5 m wide lawn is cultivated all along the outside of a rectangular plot measuring 90 m x 40 m. The area of the lawn is:  

a) 1200 sq m  

b) 1300 sq m  

c) 1350 sq m  

d) 1400 sq m  

Q49. A room 5 m x 4 m is to be carpeted leaving a margin of 25 cm from each wall. If the cost of the carpet is Rs 80 per sq m, the cost of carpeting the room will be:  

a) Rs 1440  

b) Rs 1260  

c) Rs 1228  

d) Rs 1192  

Q50. A garden is 35 m long and 25 m broad. It has 5 m wide pavements all around it, both on its inside and outside. Find the total area of pavement.  

a) 1500 sq m  

b) 800 sq m  

c) 1200 sq m  

d) Data Inadequate  

Q51. The length and breadth of a rectangular field are 500 m and 400 m respectively. If 2 roads 10 m wide
each are perpendicular to each other inside the field, what is the total area of the roads?

8900 sq m  b) 9800 sq m
c) 9900 sq m  d) 8000 sq m

Q52. The sides of a rectangular field of 128 sq m are in the ratio of 1:2. Find the sides

a) 16m, 8m  b) 12m, 6m
c) 14m, 7m  d) Data inadequate

Q53. The ratio of base and height of a triangular field is 5:4 and the area of the field is 90sq m. Find its base and height.

a) 15 m 12 m  b) 20 m 16 m
c) 25m 20 m  d) None of these

Q54. Find the area of a regular hexagon whose side measures 8 cm.

a) 16.627 sq cm  b) 156.27 sq cm
c) 166.72 sq cm  d) 156.72 sq cm

Q55. The area of a rectangular octagon is 51 sq cm, find its side.

a) 3.25 cm  b) 5.25 cm
c) 4.25  d) 6.25

Q56. There is a regular polygon of 12 sides. Find the sum of interior angles and the value of each interior angle.

a) 10Π, 5/6Π  b) 12Π, 8/9Π
c) 6Π, 5/6Π  d) data inadequate

Q57. Find the value of the sum of interior angles of a rectangular pentagon. Also find the value of each interior angle.

a) 3Π, 3/5Π  b) 2Π, 2/5Π
c) 4Π, 4/5Π  d) Data inadequate

Q58. The diameter of a wheel is 2 cm. It rolls forward covering 10 revolutions. The distance travelled by it is:

a) 3:14  b)62.8 cm
c) 31.4 cm  d) 125.6 cm

Q59. If the wheel of the engine of a train 4 2/7 metres in circumference makes seven revolutions in 4 seconds, the speed of the train is km/hr is:

a) 35  b) 32
c) 27  d) 20

Q60. A circular park of radius15 metres has a path of width 1.4 metres all around it. Find the area of the path, if the garden has path both on its outside as well as inside.

a) 264 sq m  b) 254sq m
c) 284 sq m  d) Data inadequate

Q61. There is an equilateral triangle of which each side is 6m. With all three corners as centres, circles are described each of radius 3 m. Calculate the area common to all the circles and the triangle.

a) 9/2Π sq m  b) 3Π sq m
c) 4Π sq m  d) Data Inadequate

Q62. Four circles are drawn from the four corners of a square. The diameter of each circle is equal to the side of the square and hence the adjacent circles touch each other at the mid-point of the side of the square. If the side of the square is 7 cm, find the area of unoccupied space enclosed between the circles.

a) 38.5 sq cm  b) 77 sq cm
c) 39.5 sq cm  d) None of these

Q63. If the height of a triangle is decreased by 40% and its base is increased by 40%. What will be the effect on its area?

a) No change  b) 16% increase
c) 8% decrease  d) 16% decrease
Q64. If the length of a rectangle is increased by 20% and the breadth reduced by 20%, what will be the effect on its area?

a) 4% increase  

b) 6% increase  

c) 4% decrease  

d) No change

Q65. The length and breadth of a square are increased by 40% and 30% respectively. The area of resulting rectangle exceeds the area of the square by:

a) 42%  

b) 62%  

c) 82%  

d) None of these

Q66. The length of a square is increased by 40% while breadth is decreased by 40%. The ratio of area of the resulting rectangle so formed to that of the original square is:

a) 24:21  

b) 21:25  

c) 16:15  

d) 15:16

Q67. If the side of a square be increased by 50%, the percent increase in area is:

a) 50  

b) 100  

c) 125  

d) 50

Q68. A parallelogram, the length of whose sides are 15 cm and 10 cm, has one diagonal 12 cm long. Find the length of the other diagonal.

a) \sqrt{255} cm  

b) 17 cm  

c) \sqrt{253} cm  

d) \sqrt{506} cm

Q69. A semi-circle is constructed on each side of a square of length 4 m. Find the area of the whole figure.

a) 8 \ (2+\pi) m  

b) 2(2+\pi) m  

c) 8\pi m  

d) 16(2+\pi) m

Q70. The radius of a circle is decreased by 2 m, then the ratio of the area of the original circle to the reduced circle becomes 1:4. Find its radius?

a) 4 m  

b) 6 m  

c) 3 m  

d) 2 m

Q71. A cord is in the form of a square enclosing an area of 11 sq cm. If the same cord is bent into a circle, then find the area of that circle.

a) 22 sq cm  

b) 1.4 sq cm  

c) 14 sq cm  

d) 28 sq cm

Q72. The largest triangle is inscribed in a semi-circle of radius 4 cm. Find the area of the triangle.

a) 16 sq cm  

b) 8 sq cm  

c) 12 sq cm  

d) Data inadequate

Q73. In a quadrilateral, the length of one of its diagonals is 13 cm and the perpendiculars drawn on this diagonal from other two vertices measure 12 cm and 8 cm respectively. Find the area of the quadrilateral.

a) 130 sq cm  

b) 135 sq cm  

c) 145 sq cm  

d) 144 sq cm

Q74. The side of an equilateral triangle is 3 cm long. Find the area of the circle circumscribing the equilateral triangle.

a) 3 \pi sq cm  

b) 4 \pi sq cm  

c) 6 \pi sq cm  

d) 9 \pi sq cm

Q75. The length of side of an equilateral triangle is 6 cm. Find the area of the circle inscribing the equilateral triangle.

a) 3 \pi sq cm  

b) 4 \pi sq cm  

c) 3/4 \pi sq cm  

d) Data Inadequate

Q76. Area of a rectangular plot is 15 times its breadth. If the difference between the length and the breadth is 10 metres, what is its breadth?

a) 10 metres  

b) 5 metres  

c) 7.5 metres  

d) Data inadequate
Q77. The length and the breadth of the floor of a room is 20 ft and 10 ft respectively. Square tiles of 2 ft dimension having three different colours are placed on the floor. The first row of tiles on all sides is of black colour, out of the remaining one-third is of white colour and the remaining are of blue-colour tiles are there?

a) 16  b) 32  c) 48  d) 24

Q78. The perimeter of a rectangle is equal to the perimeter of a right-angled triangle of height 12 cm. If the base of the triangle is equal to the breadth of the rectangle, what is the length of the rectangle?

a) 18 cm  b) 24 cm  c) 22 cm  d) Data inadequate

Q81. The squared value of the diagonal of a rectangle is \((64 + B^2)\) cm, where B is less than 8 cm. What is the breadth of that rectangle?

a) 6 cm  b) 10 cm  c) 8 cm  d) Data inadequate

Q79. A rectangular plate is of 6 m breadth and 12 m length. Two apertures of 2 m diameter each and one aperture of 1 m diameter have been made with the help of a gas cutter. What is the area of the remaining portion of the plate?

a) 62.5 sq m  b) 68.5 sq m  c) 64.5 sq m  d) None of these

Q80. The length and the breadth of a rectangle are in the ratio of 3:2 respectively. If the sides of the rectangle are extended on each side by 1 metre, the ratio of length to breadth becomes 10:7. Find the area of the original rectangle in square metres.

a) 256  b) 150  c) 280  d) None of these

Q81. The area of a right-angled triangle is two-third of the area of a rectangle. The base of the triangle is 80 percent of the breadth of the rectangle. If the perimeter of the rectangle is 200 cm, what is the height of the triangle?

a) 20 cm  b) 30 cm  c) 15 cm  d) Data inadequate

Q82. Four sheets of 50 cm x 5 cm are to be arranged in such a manner that a square could be formed. What will be the area of inner part of the square so formed?

a) 2000 cm\(^2\)  b) 1600 cm\(^2\)  c) 1800 cm\(^2\)  d) None of these

Q83. The length of a rectangle is twice its breadth. If its length is decreased by 5 cm and breadth is increased by 5 cm, the area of rectangle is increased by 75 cm\(^2\). Therefore, the length of the rectangle is:

a) 20 cm  b) 30 cm  c) 40 cm  d) 50 cm
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