

## Mensuration Questions PDF with detailed solutions

Mensuration questions are a common type of questions regularly asked in competitive exams. These questions carry a weightage of 1-2 questions(2-4 marks) in SSC exams and 1-2 questions(1-2 marks) bank exams. To perform well in competitive exams, your mensuration concepts should be clear.

Here are some tips for solving Mensuration questions: Familiarize yourself with formulas for various 2D and 3D shapes, Visualize shapes to better understand relationships between dimensions and Work on a range of problems involving different shapes to enhance skills.

So, we have attached 10 questions of Mensuration for you to practice with. You should aim to solve these questions in less than half a minute for each.

## Practice Questions on Mensuration

You can also download the Mensuration questions and answers pdf. Just click on the **Download PDF** button. So let's start with the very first question.

**Q:1** Total surface area of cylinder is  $704 \text{ cm}^2$  and ratio of height and base radius of the cylinder is 3 : 4, then what will be the volume of that cylinder?

1.  $384\pi \text{ cm}^3$
2.  $243\pi \text{ cm}^3$
3.  $518\pi \text{ cm}^3$
4.  $423\pi \text{ cm}^3$

(**Difficulty:** 2, **Estimated Time:** 15 Seconds) This was an easy one. Did get it right?

**Q:2** If the length of the side of the rhombus is 10 cm and the length of the shorter diagonal is 12 cm then what is the area of the rhombus?

1.  $96 \text{ cm}^2$
2.  $108 \text{ cm}^2$
3.  $80 \text{ cm}^2$
4.  $144 \text{ cm}^2$

(**Difficulty:** 3, **Estimated Time:** 20 Seconds) This was a simple one, don't get stuck in unnecessary calculations!

**Q:3** What is the volume of a hexagonal prism of base length 5 cm and height  $4\sqrt{3} \text{ cm}$ ?

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1.  $360 \text{ cm}^3$
2.  $420 \text{ cm}^3$
3.  $450 \text{ cm}^3$
4.  $480 \text{ cm}^3$

(**Difficulty: 2, Estimated Time: 15 Seconds**) A question of seconds.....

**Q:4** The area of the circular park is  $5544 \text{ m}^2$ . There is a 7m wide path for running inside the park. Park owners decide to pave the running track. If the cost of paving Rs 12 per meter square then find the total cost of paving the running track of the park.

1. Rs 12500
2. Rs 24520
3. Rs 18540
4. Rs 20328

(**Difficulty: 3, Estimated Time: 20 Seconds**) It is not an easy one but I think now you're prepared for it.

**Q:5** Amal has a toy that is in the shape of a regular tetrahedron and has a curved surface area of  $800 \text{ cm}^2$ . Each face of the tetrahedron has a height of 20 cm. What is the length of the base of one of the faces?

1. 20 cm
2. 10 cm
3. 15 cm
4. 21 cm

(**Difficulty: 3, Estimated Time: 20 Seconds**) We're halfway through. Have you got all your questions correct so far?

**Q:6** Find the volume of a pyramid whose base is square in shape with an area of  $225 \text{ sq.cm}$ . and height is 11 cm.

1.  $965 \text{ cu.cm}$
2.  $741 \text{ cu.cm}$
3.  $825 \text{ cu.cm}$
4.  $786 \text{ cu.cm}$

(**Difficulty: 2, Estimated Time: 15 Seconds**) Should we raise the level of questions?

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**Q:7** Ratio of curved surface area to total surface area of cylinder is 11 : 18. Also, area of its circular end is  $616 \text{ cm}^2$ . Find the volume of cylinder.

1.  $11576 \text{ cm}^3$
2.  $13552 \text{ cm}^3$
3.  $12785 \text{ cm}^3$
4.  $16415 \text{ cm}^3$

(**Difficulty:** 3, **Estimated Time:** 20 Seconds) Try using short tricks to save time..

**Q:8** The length and breadth of a rectangle are in a ratio 2 : 1 and the perimeter of the rectangle is 48 cm. Find the area of the rectangle.

1.  $128 \text{ cm}^2$
2.  $256 \text{ cm}^2$
3.  $64 \text{ cm}^2$
4.  $144 \text{ cm}^2$

(**Difficulty:** 3, **Estimated Time:** 20 Seconds) This was a bit calculative one...

**Q:9** The sides of the right-angle triangular park are in ratio 3 : 4. The sum of all sides is 144 m. Find the area of the triangular park.

1.  $894 \text{ m}^2$
2.  $864 \text{ m}^2$
3.  $926 \text{ m}^2$
4.  $1024 \text{ m}^2$

(**Difficulty:** 3, **Estimated Time:** 20 Seconds) Try decreasing time in your calculations

**Q:10** What is the volume of the sphere whose radius is 14cm?

1. 22158.33
2. 11699.67
3. 11250.33
4. None of these

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(Difficulty: 2, Estimated Time: 15 Seconds) Did you guess them all correctly?

## Answer Key

Let's check out your score in this test.

1. (1)	2. (1)	3. (3)	4. (4)	5. (1)
6. (3)	7. (2)	8. (1)	9. (2)	10. (4)

Comment below your score, considering each question has 1 mark only. If you scored 8 to 10, congratulations! You are one step closer to selection. If you have scored 5 to 8 marks, then you are doing well, keep it up. If you have scored less than 5 marks then you need to work a little harder on this subject. But don't worry, we are here to help you master the subject.

Let's check the answers and solutions and try to find out what went wrong.

## Answers and Solutions

**Q:1** The correct answer is **option 1** i.e.  $384\pi \text{ cm}^3$

Let height and base radius of the cylinder is  $3x$  and  $4x$  respectively.

Total surface area of the cylinder =  $2\pi r(h + r)$

$$704 = 2 \times (22/7) \times 4x \times (3x + 4x)$$

$$\Rightarrow 704 = 176x/7 \times (3x + 4x)$$

$$\Rightarrow 704 = 176x^2$$

$$\Rightarrow x^2 = 4$$

$$\Rightarrow x = 2$$

$$\text{Base radius} = 4x = 8 \text{ cm}$$

$$\text{Height} = 3x = 6 \text{ cm}$$

$$\text{Volume of the cylinder} = \pi r^2 h = \pi \times 64 \times 6 = 384\pi \text{ cm}^3$$

**Q:2** The correct answer is **option 1** i.e.  $96 \text{ cm}^2$



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By observing the given diagram and as we know that AOB is a right-angle triangle.

$$\Rightarrow OB = 12/2 = 6\text{cm}$$

$$\Rightarrow AO = \sqrt{(100 - 36)} \text{ (Using Pythagoras theorem)}$$

$$\Rightarrow 8\text{cm}$$

$$\Rightarrow AC = 16\text{cm}$$

$$\Rightarrow \text{Area of the diagonal} = (1/2) \times AC \times BD$$

$$\Rightarrow (1/2) \times 16 \times 12 = 96 \text{ cm}^2$$

**Q:3** The correct answer is **option 3** i.e. **450 cm<sup>3</sup>**

Volume of prism = Area of base  $\times$  Height

Area of hexagonal base =  $3\sqrt{3}/2 \times \text{side}^2$

$$\Rightarrow 3\sqrt{3}/2 \times 5^2 = 75\sqrt{3}/2$$

Volume of prism =  $75\sqrt{3}/2 \times 4\sqrt{3}$

$$\Rightarrow 450 \text{ cm}^3$$

**Q:4** The correct answer is **option 4** i.e. **Rs 20328**

Area of circular park =  $\pi r^2$

$$\Rightarrow 5544 = \pi r^2$$

$$\Rightarrow r^2 = 5544/\pi = 1764 \text{ (where } \pi = 22/7)$$

$$\Rightarrow r = \sqrt{1764} = 42 \text{ m}$$

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Path length is 7 m (given)

Inner circle area (without including path area)

Radius of inner circle =  $(42 - 7) \text{ m} = 35 \text{ m}$

$\text{Area}_2 = 22/7 \times 35 \times 35 = 3850 \text{ m}^2$

Total area of path =  $\text{Area}_1 - \text{Area}_2$

=  $(5544 - 3850) \text{ m}^2$

=  $1694 \text{ m}^2$

Total cost for paving =  $1694 \times 12$

= Rs 20328

**Q:5** The correct answer is **option 1** i.e. **20 cm**.

As we know that the regular tetrahedron has 4 triangular faces.

Area of one face =  $800/4 = 200 \text{ cm}^2$

Area of triangle =  $1/2 \times \text{base} \times \text{height}$ .

$200 = 1/2 \times \text{base} \times 20$

Base = 20 cm.

**Q:6** The correct answer is **option 3** i.e.  **$825 \text{ cm}^3$** .

Given

Area of square base =  $225 \text{ cm}^2$

$h = 11 \text{ cm}$

The volume of pyramid =  $1/3 \times \text{Area of square base} \times h = 1/3 \times 225 \times 11 = 825 \text{ cm}^3$

**Q:7** The correct answer is **option 2** i.e.  **$13552 \text{ cm}^3$** .

The curved surface area of the cylinder =  $2\pi rh$

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The total surface area of the cylinder =  $2\pi r(r + h)$

Ratio =  $2\pi rh : 2\pi r(r + h) = h : (r + h)$

Now,  $h : (r + h) = 11 : 18$

$\Rightarrow 18h = 11r + 11h$

$\Rightarrow 7h = 11r$

$\Rightarrow h/r = 11/7$

Also,  $\pi r^2 = 616$

$\Rightarrow r^2 = 616/\pi$

$\Rightarrow r^2 = 196 = 14$

$\Rightarrow h/r = 11/7$  (if  $r$  is 14, then  $h$  must be 22)

Volume =  $\pi \times r^2 \times h = (22/7) \times 14 \times 14 \times 22 = 13552 \text{ cm}^3$

**Q:8** The correct answer is **Option 1** i.e. **128 cm<sup>2</sup>**

Area of rectangle = Length  $\times$  Breadth

Perimeter of rectangle =  $2(\text{Length} + \text{Breadth})$

Let, the length is  $2x$  and the breadth is  $x$  (since the ratio is  $2 : 1$ ).

Now given,

$\Rightarrow 48 = 2(2x + x)$

$\Rightarrow 48 = 6x$

$\Rightarrow x = 8$

So, Length = 16 cm and Breadth = 8 cm

Area =  $16 \times 8 = 128 \text{ cm}^2$

**Q:9** The correct answer is **option2** i.e. **864 m<sup>2</sup>**.

The park is of right angle triangle shape so, the triplet of sides is (3,4,5).



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Let the side of the park be  $3x$ ,  $4x$ ,  $5x$

Sum of sides =  $12x = 144$

$\Rightarrow x = 12$

Thus, sides are  $36$  m,  $48$  m,  $60$  m

The area of triangle =  $(1/2) \times 36 \times 48 = 864 \text{ m}^2$

**Q:10** The correct answer is **option 4** i.e. **None of these**

The volume of the sphere =  $(4/3)\pi r^3$

Where  $r$  is the radius of the sphere.

$\Rightarrow (4/3) \times (22/7) \times 14 \times 14 \times 14$

$\Rightarrow 11,498.66 \text{ cm}^3$

So, this is it for today. We will meet again with another new topic. Till then, you can practice the questions again by downloading the PDF of Mensuration.