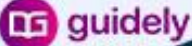


Mensuration Questions For Railway Exams

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- Find the total surface area of a spherical ball of radius 9 cm. [Use $\pi = 3.14$]
 - 1017 cm²
 - 874 cm²
 - 946 cm²
 - 1020 cm²
- The ratio of height and radius of a cylinder is 3:1, respectively. If curved surface area of cylinder is 678 cm², then find the height of cylinder. [Take $\pi = 3.14$]
 - 18 cm
 - 12 cm
 - 14 cm
 - 15 cm
- What is the volume of a right circular cone whose height is 20 m and radius is one fourth of its height? [Use $\pi = 3.14$]
 - 420 m³
 - 523 m³
 - 540 m³
 - 660 m³
- Find the radius of the solid hemisphere of volume 6,750 m³. (Take $\pi = 3$)
 - 12 m
 - 14 m
 - 15 m
 - 16 m
- The height, breadth and length of a cuboidal box are 18 cm, 'x' cm and 42 cm, respectively. If the cost of painting the base of the box was Rs. 1449 at Rs. 1.50 per cm², then find the value of 'x'.
 - 23 cm
 - 19 cm
 - 27 cm
 - 26 cm
- If the radius and height of a cylinder is decreased by 20% and 25%, respectively. Find the percentage decrease in the volume of the cylinder.
 - 52%
 - 46%
 - 54%
 - 58%
- Find the cost of painting a solid cylindrical drum having radius 14 meters and height 20 meters at the rate of Rs.15 per square meter.
 - Rs. 42,680
 - Rs. 44,880
 - Rs. 46,080



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- d) None of these
8. Breadth of the cuboidal box is half its length and one fifth its height. Find the lateral surface area of the cuboidal box if its volume is $58,320 \text{ cm}^3$.
- a) $11,016 \text{ cm}^2$
b) $10,208 \text{ cm}^2$
c) $9,720 \text{ cm}^2$
d) None of these
9. A cone of radius 22 cm and height 33 cm is melted and casted in form of a cylinder of equal base, then find the height of cylinder.
- a) 33 cm
b) 22 cm
c) 11 cm
d) None of these
10. Find the cost of painting the total surface area of the hemisphere of radius 14 m at the rate of Rs. 12.50/m².
- a) Rs. 23,100
b) Rs. 21,140
c) Rs. 22,220
d) None of these
11. The height and radius of base of the right circular cone are in the ratio 4:3 respectively. If the curved surface area of the cone is 2310 cm², then find the difference in the diameter and height of the cone.
- a) 28 cm
b) 14 cm
c) 7 cm
d) None of these
12. A hollow cylinder of height 25 cm is unwrapped to get a rectangle of dimensions 88 cm × 25 cm. Find the volume of the cylinder.
- a) 12600 cm^3
b) 15400 cm^3
c) 16400 cm^3
d) 14800 cm^3
13. Find the curved surface area of the cone of radius 5 cm and height equal to the breadth of the rectangle of area 180 cm² whose length and breadth are in the ratio of 5:4, respectively. [Use $\pi = 3.14$]
- a) 204 cm^2
b) 210 cm^2
c) 184 cm^2
d) None of these
14. A cylinder of radius 8 cm and height 16 cm is melted and again cast to form small cylinders of radius 2 cm and height 4 cm. Find the number of small cylinders that can be formed from the big cylinder.



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- a) 42
b) 64
c) 36
d) 48
15. If the volume of the sphere is 38808 m^3 , then find the total surface area of the sphere.
a) 5372 m^2
b) 5544 m^2
c) 5648 m^2
d) 5775 m^2
16. The total surface area of the cylinder is 1104 cm^2 . If the cost of painting the curved surface area of the cylinder is Rs. 2520 at the rate of Rs. $3.5/\text{cm}^2$, then find the radius of the cylinder. [Use $\pi = 3$]
a) 12 cm
b) 7 cm
c) 9 cm
d) None of these
17. A toy which is in the form of hemispheres mounted on both ends of a hollow cylinder such that their bases coincide. If the length of the toy is 20 cm and the total curved surface area of the toy is 572 cm^2 , then find the height of the cylinder.
a) 8.8 cm
b) 10.9 cm
c) 9.1 cm
d) 9 cm
18. If the ratio of the curved surface area of a cylinder to its total surface area is 1:3 respectively, then find the ratio of radius of cylinder to the height of cylinder.
a) 2:1
b) 3:2
c) 1:3
d) 2:3
19. A spherical ball is melted and casted into three small spherical balls of radius 3 cm, 4 cm and 5 cm, find the radius of big spherical ball.
a) 4 cm
b) 5 cm
c) 6 cm
d) 8 cm
20. If a cone of radius 16 cm and height 32 cm is melted and casted in the form of a hemisphere, then find the radius of hemisphere.
a) 14 cm
b) 12 cm
c) 16 cm
d) 18 cm
21. Find the total surface area of a hemispherical bowl whose radius is twice the side of an



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equilateral triangle having area $16\sqrt{3} \text{ cm}^2$. [Use $\pi = 3$]

- a) 2642 cm^2
- b) 2304 cm^2
- c) 2456 cm^2
- d) 2248 cm^2

22. Find the maximum volume of the cone that can be cut out from the cylinder of radius 7 cm and height 24 cm.

- a) 1232 cm^3
- b) 1472 cm^3
- c) 1156 cm^3
- d) 1636 cm^3

23. The radius of a right circular cone and a right circular cylinder are in the ratio 6:5, respectively and their heights are in the ratio 5:3, respectively. Find the ratio of the volume of cone to that of cylinder.

- a) 4:5
- b) 2:1
- c) 3:2
- d) 3:1

24. The cost of painting the curved surface area of the cone at the rate of Rs. 2.5 per cm^2 is Rs. 1800. If the radius of the cone is 12 cm, then find the height of the cone. (Use $\pi = 3$)

- a) 16 cm

b) 20 cm

c) 35 cm

d) 5 cm

25. If the total surface area and curved surface area of the cylinder is 836 cm^2 and 528 cm^2 , respectively. Find the height of the cylinder.

- a) 21 cm
- b) 14 cm
- c) 12 cm
- d) None of these

26. A solid spherical ball of volume 38808 cm^3 is broken into two equal halves. Find the increase in the total surface area of both hemispheres with respect to the sphere (in cm^2).

- a) 2772 cm^2
- b) 2277 cm^2
- c) 2727 cm^2
- d) 2722 cm^2

27. Find the area of the circle whose radius is equal to the side of cube of volume 729 cm^3 . (Take $\pi = 3$)

- a) 192 cm^2
- b) 243 cm^2
- c) 272 cm^2
- d) 157 cm^2



Mensuration Questions For Railway Exams

28. The ratio of the radius of the cylinder to its height is 1:2. If the volume of the cylinder is 1296 cm^3 , then find the radius of the cylinder. [Use $\pi = 3$]
- a) 4 cm
b) 6 cm
c) 7 cm
d) 8 cm
29. A cylindrical vessel has radius 12 cm and height 18 cm. Find the cost of painting the lateral surface of the vessel at the rate of Rs. 5 per cm^2 . ($\pi = 3$)
- a) Rs. 6840
b) Rs. 6480
c) Rs. 6520
d) Rs. 6750
30. What is the height of a cone of radius 15 cm and curved surface area 255π ?
- a) 8 cm
b) 13 cm
c) 17 cm
d) 5 cm
31. The ratio of the radius of two circles is 2 : 3. The perimeter of the smaller circle is 88 cm. Find the perimeter of bigger circle?
- a) 132 cm
b) 105 cm
c) 176 cm
d) 142 cm
32. The volume of a cylinder is 594 cm^3 and its height is 21 cm. Find the radius of the cylinder?
- a) 9 cm
b) 3 cm
c) 12 cm
d) 6 cm
33. The perimeter of a rectangle is 132 cm and the difference between its length and breadth is 10 cm. Find its area? Note: Length > Breadth.
- a) 1064 cm^2
b) 1032 cm^2
c) 1012 cm^2
d) 1832 cm^2
34. The ratio between the radius of a circle and the side of a square is 7 : 5 and the circumference of the circle is 176 cm. Find the area of square ?
- a) 169 cm^2
b) 729 cm^2
c) 400 cm^2
d) 900 cm^2
35. The length and breadth of a rectangle is in the ratio of 5 : 2 and its area is 640 cm^2 then find its length and breadth?



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- a) 40 cm & 16 cm
b) 40 cm & 8 cm
c) 32 cm & 16 cm
d) None of these
36. The ratio of area of a circle and its circumference is 15 : 2 then find the circumference of the circle?
a) 28.64 cm
b) 92.64 cm
c) 74.64 cm
d) 94.28 cm
37. The radius of a circle and side of a square is in the ratio of 7 : 9 and the circumference of the circle is 176 cm. Find the area of the square ?
a) 1225 cm²
b) 8100 cm²
c) 1681 cm²
d) 1296 cm²
38. The height and radius of a cylinder are in the ratio of 280 : 105 and its curved surface area is 1848 cm². Find the height of the cylinder ?
a) 28 cm
b) 07 cm
c) 14 cm
d) 21 cm
39. The side of a square is 1.5 times of the radius of a circle whose area is 616 cm². Find the perimeter of the square?
a) 132 cm
b) 84 cm
c) 42 cm
d) 66 cm
40. The length of a rectangle is 10 cm more than breadth which is equal to the side of an equilateral triangle of area $16\sqrt{3}$ cm². Find the area of rectangle?
a) 316 cm²
b) 216 cm²
c) 128 cm²
d) 144 cm²
41. The ratio of the side of a square, length and breadth of a rectangle is 1 : 2 : 1. The difference between the length and breadth of the rectangle is 8 cm then find the perimeter of square?
a) 56 cm
b) 32 cm
c) 44 cm
d) 24 cm
42. The ratio between the side of a square, length and breadth of a rectangle is 1 : 2 : 3 and the difference between the length of rectangle and



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side of square is 10 cm. Find the perimeter of rectangle?

- a) 156 cm
- b) 100 cm
- c) 144 cm
- d) 244 cm

43. The perimeter of the rectangle is 132 cm and the length of rectangle is 12 cm more than its breadth. Find its area?

- a) 1680 cm^2
- b) 1064 cm^2
- c) 1053 cm^2
- d) 1024 cm^2

44. The side of a square is twice to the radius of a circle whose circumference is 176 cm. Find the perimeter of square?

- a) 325 cm
- b) 336 cm
- c) 324 cm
- d) 224 cm

45. The radius of a cone is increased by 10% by what percent its height must be decreased to keep its volume same as before?

- a) 9.09%
- b) 10%
- c) 11.11%
- d) Cannot be determined

46. Find the radius of a cylinder if its volume is 3096 cm^3 and radius is 20% more than its height?

- a) $6 \times (5.47)^{1/3} \text{ cm}$
- b) 15 cm
- c) 15.98 cm
- d) 14.28 cm

47. If the volume of a cone is 1296 cm^3 and the diameter of the base is 14 cm then find the curved surface area of the cone?

- a) 174 sq. cm^2
- b) 274 cm^2
- c) 474 cm^2
- d) 572 cm^2

48. The sides of a parallelogram are 12 cm and 10 cm and It's one diagonal is 8 cm then find the other diagonal?

- a) $2\sqrt{106} \text{ cm}$
- b) $4\sqrt{14} \text{ cm}$
- c) $\sqrt{14} \text{ cm}$
- d) $8\sqrt{14} \text{ cm}$

49. If the radius of a cylinder is 50% of the height of a cylinder then find the volume of the cylinder ? (Given : height is 10 cm more than radius.)

- a) 6185.71 cm^3
- b) 6258.71 cm^3 .
- c) 6285.71 cm^3 .
- d) 6201.71 cm^3 .



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50. The volume of a cylinder is 100π and the ratio of radius to its height is 5 : 4. Find the curved surface area of cylinder?

a) 400π sq. unit

b) 40 sq. unit

c) 40π sq. unit

d) 140π sq. unit

ANSWERS

1) Answer: A

Total surface area of sphere = $4\pi r^2$, where r is the radius.
 $= 4 \times 3.14 \times 9^2 = 1017 \text{ cm}^2$

2) Answer: A

Let, height and radius of the cylinder be '3x' cm and 'x' cm, respectively.

So, $2 \times 3.14 \times 3x^2 = 678$

$x = \sqrt{36} = 6$

So, height of cylinder = $3x = 18 \text{ cm}$

3) Answer: B

Radius of cone = $1/4 \times 20 = 5 \text{ m}$

Volume = $(1/3) \pi r^2 h$, where r is the radius and h is the height of cone.

$= 1/3 \times 3.14 \times 5^2 \times 20 = 523 \text{ m}^3$

4) Answer: C

Volume of hemisphere = $2/3 \times \pi \times r^3$

Radius of hemisphere = $(6750/2)^{1/3} = 15 \text{ m}$

5) Answer: A

Area of the base = $l \times b = 42 \times x$

$42 \times x = 1449 / 1.5$

So, $x = 23 \text{ cm}$

6) Answer: A

Let, radius and height of cylinder be 'r' and 'h', respectively.

Decreased radius = $0.8r$

Decreased height = $0.75h$

So, original volume = $\pi r^2 h$

Decreased volume = $\pi \times (0.8r)^2 \times 0.75h = 0.48\pi r^2 h$

So, required percentage = $\{(\pi r^2 h - 0.48\pi r^2 h) / \pi r^2 h\} \times 100 = 52\%$

7) Answer: B

Total surface area of cylinder = $2 \times \pi \times r \times (h + r) = 2 \times 22/7 \times 14 \times (20 + 14) = 88 \times 34 = 2992 \text{ m}^2$

So the cost of painting = $2992 \times 15 = \text{Rs. } 44,880$

8) Answer: C

Let the breadth of the cuboidal box = $x \text{ cm}$

Length of the cuboidal box = $2x \text{ cm}$

Height of the cuboidal box = $5x \text{ cm}$

So the volume of the box = $x \times 2x \times 5x = 58320$

$10x^3 = 58320$

$x^3 = 5832, x = 18$



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So the length, breadth and the height of the box are 36 cm, 18 cm and 90 cm respectively.

So the lateral surface area of the box = $2 \times 90 \times (18 + 36) = 9,720 \text{ cm}^2$

9) Answer: C

Let 'r', 'h' and 'H' denote the radius of the cone, height of the cone and height of the cylinder respectively.

According to question,

Volume of cone = Volume of cylinder

$$(1/3) \times \pi \times r^2 \times h = \pi \times r^2 \times H$$

$$H = (1/3) \times 33$$

$$H = 11 \text{ cm}$$

10) Answer: A

Total surface area of the hemisphere = $3 \times (22/7) \times 14^2 = 1,848 \text{ m}^2$

So, required cost of painting = $1848 \times 12.50 = \text{Rs. } 23,100$

11) Answer: B

Let the radius of base and the height of the cone be '3x' cm and '4x' cm respectively

So, the slant height of the cone = $\sqrt{(3x)^2 + (4x)^2} = \sqrt{9x^2 + 16x^2} = \sqrt{25x^2} = 5x \text{ cm}$

So, the curved surface area of the cone = $22/7 \times 3x \times 5x = 2310$

$$15x^2 = 735$$

$$x^2 = 49$$

$$x = 7$$

So, the radius and height of the cone are 21 cm and 28 cm respectively.

Desired difference = $21 \times 2 - 28 = 14 \text{ cm}$

12) Answer: B

When a hollow cylinder is unwrapped,

Breadth of the rectangle = Height of the cylinder

So, height of cylinder = 25 cm

Also, length of the rectangle = circumference of base of the cylinder

$$88 = 2 \times (22/7) \times r$$

$$r = 14 \text{ cm}$$

Thus, volume of the cylinder = $(22/7) \times r^2 \times h$

$$= (22/7) \times (14)^2 \times 25$$

$$= 15400 \text{ cm}^3$$

13) Answer: A

Let the length and breadth of the rectangle be '5x' cm and '4x' cm, respectively.

According to question,

$$5x \times 4x = 180$$

$$20x^2 = 180$$

$$x^2 = 9$$

$$x = 3$$

So, breadth of rectangle = $4x = 12 \text{ cm}$

Curved surface area of the cone = $\pi \times 5 \times (12^2 + 5^2)^{0.5}$

$$= 3.14 \times 5 \times 13 = 204 \text{ cm}^2$$

14) Answer: B



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Required number of cylinders that can be formed = $(\pi \times 8^2 \times 16) / (\pi \times 2^2 \times 4)$
= 64

15) Answer: B

Let the radius of the sphere be 'r' meters.

Volume of the sphere = 38808

$$(4/3) \times (22/7) \times r^3 = 38808$$

$$r^3 = 9261$$

$$r = 21 \text{ cm}$$

So, the total surface area of the sphere = $4 \times (22/7) \times 21^2 = 5544 \text{ m}^2$

16) Answer: D

Total surface area of the cylinder = 1104 cm^2

Curved surface area of the cylinder = $2520/3.5 = 720 \text{ cm}^2$

$$\text{So, } 2\pi rh + 2\pi r^2 - 2\pi rh = 1104 - 720$$

$$2\pi r^2 = 384$$

$$r^2 = 384/6 = 64$$

$$r = 8 \text{ cm}$$

So, the radius of the cylinder is 8 cm

17) Answer: B

Let the radius of the cylinder (or hemisphere) be 'r' cm and the height of the cylinder be 'h' cm.

$$\text{Then, } 2r + h = 20$$

$$h = 20 - 2r.$$

Also, Total CSA of the toy = 572 cm^2

$$2 \times \pi \times r^2 + 2 \times \pi \times r \times h + 2 \times \pi \times r^2 = 572$$

$$4 \times \pi \times r^2 + 2 \times \pi \times r \times (20 - 2r) = 572$$

$$4 \times \pi \times r^2 + 40 \times \pi \times r - 4 \times \pi \times r^2 = 572$$

$$r = 4.55 \text{ cm}$$

Thus, height of the cylinder = $20 - 2 \times 4.55 = 10.9 \text{ cm}$

18) Answer: A

Let, r and h be the radius and height of cylinder respectively.

So, according to question,

$$2\pi rh / 2\pi r (h + r) = 1/3$$

$$h: (h + r) = 1: 3$$

$$3h = h + r$$

$$2h = r$$

$$r : h = 2:1$$

19) Answer: C

Let the radius of spherical ball be 'r' cm.

Volume of bigger sphere = $(4/3) \times \pi \times r^3$

So, according to question,

$$(4/3) \times \pi \times r^3 = (4/3) \pi \times 3^3 + (4/3) \pi \times 4^3 + (4/3) \pi \times 5^3$$

$$r^3 = 27 + 64 + 125$$

$$r^3 = 216$$

$$r = 6 \text{ cm}$$

20) Answer: C

According to question,

Volume of cone = Volume of hemisphere

$$(1/3) \times \pi \times (\text{radius of cone})^2 \times \text{height of cone} = (2/3) \pi \times (\text{radius of hemisphere})^3$$

$$16^2 \times 32 = 2 \times (\text{radius of hemisphere})^3$$



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$$(\text{Radius of hemisphere})^3 = 16^3$$

$$\text{Radius of hemisphere} = 16 \text{ cm}$$

21) Answer: B

$$\text{Area of equilateral triangle} = (\sqrt{3}/4) \times \text{side}^2$$

$$(\sqrt{3}/4) \times \text{side}^2 = 16\sqrt{3}$$

$$\text{side}^2 = 64$$

$$\text{side} = 8 \text{ cm}$$

$$\text{So, radius of hemispherical bowl} = 8 \times 2 = 16 \text{ cm}$$

$$\begin{aligned} \text{Total surface area of the hemispherical bowl} &= 3 \times \pi \times r^2 \\ &= 3 \times 3 \times 16^2 \\ &= 2304 \text{ cm}^2 \end{aligned}$$

22) Answer: A

$$\text{Volume of cylinder} = \pi \times r^2 \times h$$

$$= (22/7) \times 7^2 \times 24$$

$$= 3696 \text{ cm}^3$$

So, maximum volume of cone the cone that can be cut

$$\text{out} = (1/3)^{\text{rd}} \text{ of the volume of the cylinder}$$

$$= (1/3) \times 3696 = 1232 \text{ cm}^3$$

23) Answer: A

Let the radius of the cone and cylinder be '6r' and '5r' respectively.

Let the heights of cone and cylinder be '5h' and '3h' respectively.

$$\text{So, the volume of cone} = 1/3 \times \pi \times (6r)^2 \times 5h = 60\pi \times h \times r^2$$

$$\text{Volume of cylinder} = \pi \times (5r)^2 \times 3h = 75\pi \times h \times r^2 \text{ cm}^3$$

$$\text{Ratio of the volume of cone and cylinder} = 60\pi \times h \times r^2 :$$

$$75\pi \times h \times r^2 = 60 : 75 = 4 : 5$$

24) Answer: A

Let the radius, height, and slant height of the cone be 'r', 'h' and, 's' cm respectively.

$$\text{Given, } r = 12 \text{ cm}$$

$$\text{Curved surface of the cone} = 1800/2.5 = 720 \text{ cm}^2$$

$$\pi \times r \times l = 720$$

$$3 \times 12 \times l = 720$$

$$l = 20 \text{ cm}$$

$$\text{So, the height of the cone, } h = (l^2 - r^2)^{0.5}$$

$$= (20^2 - 12^2)^{0.5} = 16 \text{ cm}$$

25) Answer: C

Let, the radius and height of the cylinder be 'r' and 'h' cm, respectively.

$$\begin{aligned} \text{Total surface area of the cylinder} &= 2 \times \pi \times r \times h + 2 \times \pi \times r^2 = 836 \text{ ----(1)} \end{aligned}$$

$$\begin{aligned} \text{Curved surface area of the cylinder} &= 2 \times \pi \times r \times h = 528 \text{ ---(2)} \end{aligned}$$

Subtracting equation (2) from equation (1), we get

$$2 \times \pi \times r^2 = 308$$

$$2 \times (22/7) \times r^2 = 308$$

$$r^2 = 49$$

$$r = 7 \text{ cm}$$

Putting the value of 'r' in eq. (2), we get

$$2 \times (22/7) \times 7 \times h = 528$$

$$h = 12 \text{ cm}$$



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So, the height of the cylinder is 12 cm.

26) Answer: A

Let the radius of the sphere be 'r' cm.

Given, Volume of sphere = 38808 cm^3

$$\left(\frac{4}{3}\right) \times \pi \times r^3 = 38808$$

$$r^3 = 9261$$

$$r = 21 \text{ cm}$$

Now, total surface area of sphere before breaking into two halves = $4\pi r^2$

$$\text{Total surface area of two hemispheres} = 2 \times 3\pi r^2 = 6\pi r^2$$

$$\begin{aligned} \text{Thus, increase in total surface area} &= 6\pi r^2 - 4\pi r^2 = 2\pi r^2 \\ &= 2772 \text{ cm}^2 \end{aligned}$$

27) Answer: B

Let the side of the cube be 'x' cm.

$$x^3 = 729, x = 9 \text{ cm}$$

So, radius of the circle, $r = 9 \text{ cm}$

$$\text{Area of the circle} = \pi r^2 = 3 \times 9^2 = 243 \text{ cm}^2$$

28) Answer: B

Let the radius of the cylinder be 'x' cm.

Then, height of the cylinder = $2x \text{ cm}$

$$\text{Volume of cylinder} = \pi r^2 h = 1296$$

$$3 \times x^2 \times 2x = 1296$$

$$x^3 = 216, x = 6$$

Required radius of cylinder = 6 cm

29) Answer: B

$$\begin{aligned} \text{Lateral surface area of vessel} &= 2 \times 3 \times 12 \times 18 = 1296 \\ &\text{cm}^2 \end{aligned}$$

$$\text{Required cost of painting} = 1296 \times 5 = \text{Rs. } 6480$$

30) Answer: A

$$\pi \times 15 \times l = 255\pi, l = 17 \text{ cm}$$

$$h = (17^2 - 15^2)^{0.5} = 8 \text{ cm}$$

31) Answer: A

Solution: According to the question.

Let the radius of smaller circle = $2x$ and the radius of bigger circle = $3x$

Perimeter of smaller circle = 88 cm

$$2 \times \pi \times 2x = 88$$

$$\Rightarrow x = 7$$

Radius of smaller circle = 14 cm

Radius of bigger circle = 21 cm

$$\text{So, perimeter of bigger circle} = 2 \times \pi \times 21 = 132 \text{ cm}$$

32) Answer: B

Solution: According to the question.

$$\text{Volume of cylinder} = \pi r^2 h$$

$$594 = (22 \times r^2 \times 21) / 7$$

On solving -

$$r = 3 \text{ cm.}$$

33) Answer: A

Solution: According to the question.

$$\begin{aligned} \text{Perimeter of rectangle} &= 2 \times (\text{length} + \text{Breadth}) \\ &\dots\dots\dots(1) \end{aligned}$$

$$\text{Perimeter} = 132 \text{ cm}$$

$$L + B = 66 \text{ cm} \dots\dots\dots(2)$$

$$L - B = 10 \text{ cm} \dots\dots\dots(3)$$



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After Solving equation (2) and equation(3) we get

Length = 38 cm

Breadth = 28 cm

Area of rectangle = Length x breadth(4)

Area of rectangle = 1064 cm^2

34) Answer: C

Solution: According to the question.

Radius of circle: Side of square = $7x : 5x$

Circumference = 176 cm

Circumference = $2\pi r$

$2\pi r = 176$

$\Rightarrow r = 28$

Radius(r) = 28 cm

So, side of square = $28 \times \frac{5}{7} = 20 \text{ cm}$

Area of square = (Side x Side) = 400 cm^2

35) Answer: A

Solution: According to the question.

Length : breadth = $5x : 2x$ (1)

Area of the rectangle = Length x Breadth

.....(2)

$10x^2 = 640$

$x = 8$

Length of rectangle = $5x = 40 \text{ cm}$.

Breadth of rectangle = $2x = 16 \text{ cm}$.

36) Answer: D

Area of circle : Circumference of circle = $15 : 2$

$(\pi r^2) : (2\pi r) = 15 : 2$

$r = 15 \text{ cm}$

Circumference of circle = $2\pi r$

Circumference of circle = 94.28 cm

37) Answer: D

Circumference of circle = 176 cm

$2 \times 22 \times R / 7 = 176 \text{ cm}$

$R = 28 \text{ cm}$ (1)

Side : Radius = $9x : 7x$ (2)

$7x = 28 \text{ cm}$

$9x = 36 \text{ cm}$

Side of square = 36 cm.

Area of square = side x side

Area of square = 1296 cm^2

38) Answer: A

Solution: According to the question.

Radius: Height = $105 : 280$ (1)

curved surface area of cylinder = $2\pi rh$ (2)

$(2 \times 22 \times 280y \times 105y) = 1848 \times 7$

$y = 0.1$

Height of cylinder = $280y = 28 \text{ cm}$.

39) Answer: B

Area of circle = 616 cm^2

$(22 \times r \times r) / 7 = 616$

$r = 14$

Radius of circle = 14 cm

Side : Radius = $3 : 2$ (1)

$2x = 14 \text{ cm}$



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$$3x = 21 \text{ cm}$$

Side of square = 21 cm.

Perimeter of square = 4 X Side of square

Perimeter of square = 4 X 21 = 84 cm.

40) Answer: D

Area of equilateral triangle = $16\sqrt{3}$ (1)

$$\frac{\sqrt{3}}{4} \times \text{side}^2 = 16\sqrt{3}$$

Side = 8 cm.

Breadth of a rectangle = 8 cm.

Length of a rectangle = 18 cm.

Area of rectangle = Length X Breadth

Area of rectangle = 144 cm^2

41) Answer: B

Side of square: Length of rectangle : Breadth of rectangle = 1 : 2 : 1(1)

Difference of length and breadth of rectangle = 1 unit

Actual difference = 8 cm

so, 1 unit = 8cm

so, Side of square = 8 cm

Perimeter of Square = 4x side

Perimeter of Square = 32 cm

42) Answer: B

Side of square: Length of rectangle : breadth of rectangle = 1 : 2 : 3(3)

Difference = 1 unit

Actual difference = 10 cm

1 unit = 10 cm

Length of rectangle = 20 cm

Breadth of rectangle = 30 cm

Perimeter of Rectangle = 2 x (length + Breadth)

Perimeter of rectangle = 100 cm

43) Answer: C

Perimeter of rectangle = 2 x (L + B)

$$L = B + 12$$

$$L - B = 12 \text{(1)}$$

$$132 = 2 \times (L + B)$$

$$L + B = 66 \text{ cm(2)}$$

By solving this two equations we get

Length (L) = 39 cm

Breadth = 27 cm

Area of rectangle = Length x Breadth

Area of rectangle = 39 x 27

Area of rectangle = 1053 cm^2

44) Answer: D

Circumference of a circle = 176 cm

$$2\pi R = 176$$

$$R = 28 \text{ cm.}$$

Side of square = 2 X radius of circle

Side of square = 56 cm

Perimeter of square = 4 X Side

Perimeter of square = 224 cm

45) Answer: A

$$\text{Volume of cone} = \frac{\pi r^2 h}{3}$$

Before

After



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Radius 10x: 11x
Height 11y: 10y
Volume 110xy : 110xy

Difference = 1y

Percentage decrease = $(1y/11y) \times 100$

Percentage change = 9.09%

46) Answer: A

Volume of cylinder = $\pi r^2 h$

According to the question

radius : height = 6:5

$3096 = (22 \times 6y \times 6y \times 5y) / 7$

$y^3 = 5.47$

$y = 5.47^{1/3}$

Radius = $6 \times (5.47)^{1/3}$

47) Answer: D

Solution: According to the question

Volume of cone = 1296 cm^3

$\pi r^2 h / 3 = 1296$

$h = 25 \text{ cm (approx)}$

Curved surface area = $\pi r L$

$L = \text{slant height}$

$L = \sqrt{(h^2 + r^2)}$

$L = 26 \text{ cm (approx)}$

CSA = 572 cm^2 (approx)

48) Answer: A

Let the two diagonals be $d_1 = 8 \text{ cm}$ & $d_2 = x \text{ cm}$

We know that,

$8^2 + x^2 = 2(12^2 + 10^2)$

$x = 2\sqrt{106} \text{ cm}$

49) Answer: C

Radius: Height = 1 : 2

Difference = 1 unit

1 unit = 10 cm

Height = 20 cm & Radius = 10 cm

Volume of the cylinder = $\pi r^2 h$

Volume of cylinder = 6285.71 cm^3 .

50) Answer: C

Volume of cylinder = 100π

$\pi r^2 h = 100\pi$

$r^2 h = 100 \text{ units}$

$25x^2 \cdot 4x = 100 \text{ units}$

$x^3 = 1$

$x = 1$

Radius = 5 units & height = 4 units.

Curved surface = $2\pi r h$

Curved surface = $40\pi \text{ sq. unit}$

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