क्षेत्रफल, क्षेत्रमिति (MENSURATION)

Area

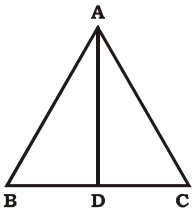
Area can be defined as the space occupied by a flat shape or the surface of an object. Area is measured in square units such as square centimetres, square feet, square inches, etc.

Perimeter

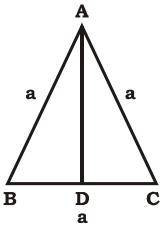
The circumference or outline of a closed figure or the outer boundary of an enclosed area is called perimeter. The units of perimeter are metres, centimetres and kilometres.

Triangle

A triangle is a 3-sided polygon sometimes (but not very commonly) called the trigon. Every triangle has three sides and three angles, some of which may be the same. The sum of all the angles of a triangle is 180°.



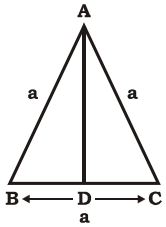
1. **Equilateral Triangle**
   Triangle in which all the three sides of equal lengths is called equilateral triangle. The value of each angle of an equilateral triangle is 60º.



   Area of equilateral triangle = $\frac{\sqrt{3}}{4} \times side^2$
   Perimeter of equilateral triangle = 3 × side

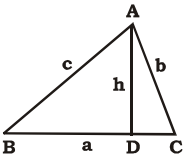
   Length of the line drawn from the vertex = $\frac{\sqrt{3}}{4}$ × side

2. **Isosceles Triangle:** Triangle with two sides equal is called an isosceles triangle.



   Area of isosceles triangle = $\frac{b}{4}\sqrt{4a^2 - b^2}$
   Perimeter of isosceles triangle = $a + a + b$ or $2a + b$
   Length of the line drawn from the vertex (AD) = $\frac{\sqrt{4a^2 - b^2}}{2}$

3. **Scalene Triangle:** Triangle which has no equal side is called a scalene triangle. The triangle ABC is a scalene triangle.



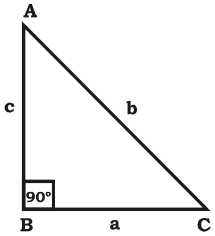
   Area of scalene triangle = $\frac{1}{2}$ × base × height = $\frac{1}{2}$ ah

   or
   Area of scalene triangle = $\sqrt{s(s-a)(s-b)(s-c)}$ where s = $\frac{a+b+c}{2}$

   Perimeter of scalene triangle = a+b+c, sum of all the sides of the triangle

4. Right-angled Triangle: The triangle with one of the angle 90º is called Right Angled Triangle.

   I f in the given triangle ABC, if sides AB= BC, then the triangle is called an isosceles right-angled triangle.



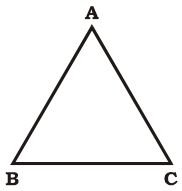
   Area of right-angled triangle = $\frac{1}{2}$ × base × height = $\frac{1}{2}$ ac
   Perimeter of right-angled triangle = $a + b$ + c

The hypotenuse of a right angled triangle = $\sqrt{height^2 + base^2}$

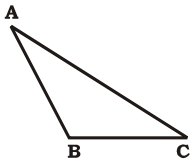
Height of a right angled triangle = $\sqrt{hypotenuse^2 - base^2}$

Base of a right angled triangle = $\sqrt{hypotenuse^2 - height^2}$

5. **Acute- angled Triangle:** A triangle in which all the angles are less than 90º is called Acute angled Triangle.



6. **Obtuse- angled Triangle:** The triangle with an angle between 90º and 180º is called Obtuse Angled Triangle.



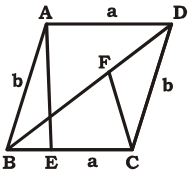
Quadrilateral:

A 2D plane which has four sides is called quadrilateral. Any quadrilateral has four angles and the sum of these angles is 360 °. ABCD is a quadrilateral with sides. AC and BD are diagonals of the quadrilateral and side AB is opposite to CD and AD is opposite to BC.

1. **Parallelogram:** A flat shape with 4 straight sides where **opposite sides are parallel**.

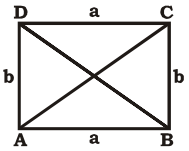
Also:
• opposite sides are equal in length, and
• opposite angles are equal (angles "A" are the same, and angles "B" are the same)

ABCD is a parallelogram where AB II DC and AD II BC.

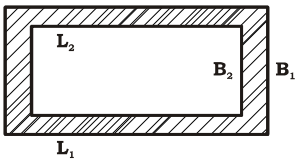


Area of parallelogram = base × height = ah
Area of parallelogram = length of the diagonal × length of a line drawn from any point to the diagonal= BD × CF
OR
Area of parallelogram = 2 × area of triangle ABD or BCD
Perimeter of parallelogram = 2 × (a× b)

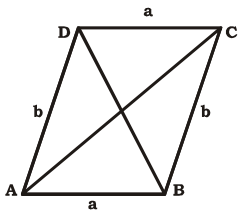
2. **Rectangle:**
A rectangle is a 2D shape in geometry, having four corners and four sides. Its two sides meet at right angles. Thus, a rectangle has 4 angles, each measuring 90°.
The opposite sides of a rectangle have the same lengths and are parallel.
Two sides are said to be parallel, when the distance between them remains the same at all points.



Area of rectangle = length× breadth
Perimeter of rectangle = 2 × (a× b)
Diagonal of a rectangle = $\sqrt{(length)^2 \div (breadth)^2}$
Pathways inside or outside a rectangular ground
Area = $L1 \times B1 - L2B2$



3. **Rhombus**
A rhombus is a parallelogram whose all the sides are equal.
In the given figure, ABCD is a Rhombus.
(a) AO = OC
and
OB = OD
(b) ∠AOB = ∠BOC = ∠COD
= ∠DOA = 90º



Area of rhombus = $\frac{1}{2}$ × Product of both the diagonals

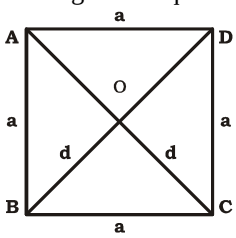
Perimeter of rhombus = 4 × side

In a rhombus= $(AC)^2 + (BD)^2 = 4a^2$

The diagonals of a rhombus divide equally at 90°.

4. **Square:**

Square is a 3D figure in which all the sides are equal. Each angle in a square is 90º.



Area of square= $(side)^2$= $(a)^2$

Area of square= $\frac{1}{2}$ × Product of both the diagonals = $\frac{1}{2}$ × AC × BD

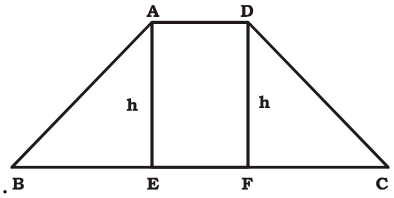
Perimeter of square= 4 × side

Diagonal of square= side ×$\sqrt{2}$

Diagonal of square= $\sqrt{2 \times \text{area of square}}$

5. **Trapezium:**

A 2D shape in Geometry with four sides, where two of the sides are parallel is called trapezium. In the given figure, ABCD, AD and BC are parallel.



AB and CD are oblique arms. If lines AE and DF are drawn on BC from the point A and D respectively, then AE and DF will be the height of the trapezium.

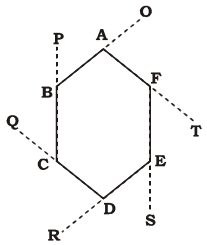
Area of trapezium

= $\frac{1}{2}$ × height × sum of parallel sides

= $\frac{1}{2}$ × h × (AD+BC)

Polygon

Area of a polygon can be calculated by dividing it into several triangles or figures. If the polygon has five, six or ten sides then it is called pentagon, hexagon and Decagon respectively.



Sum of the interior angles of a quadrilateral with the n sides = 2 (n-2) × 90 °

Sum of the exterior angles of the polygon with the side = 360 °

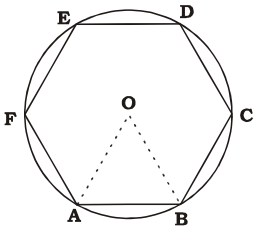
Every interior angle of a right-angled equilateral triangle = $\frac{2\,(n-2) \times 90\,^\circ}{n}$

Every exterior angle of a right-angled equilateral triangle = $\frac{360\,^\circ}{n}$

Perimeter of a polygon = n × side

Area of regular hexagon

= 6 × $\frac{\sqrt{3}}{4}$ $(side)^2$



= $\frac{3\sqrt{3}}{2}$ $(side)^2$

Perimeter of regular hexagon= 6 × side

Side of a hexagon = Diameter of the circle

The number of diagonals of a regular polygon with n number of sides

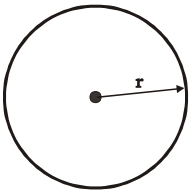
= $\frac{n(n-3)}{2}$

Circle

The circle is the locus of a point which rotates in such a way that its distance from a fixed point is always equal.

Let the stationary point be the centre of the circle. The constant distance from the centre of the circle is called the radius of the circle. The path is called circumference.

A straight line passing through a centre that divides a circle into two equal sections is called the diameter of the circle. The diameter is twice its radius.



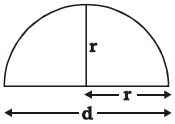
Diameter of a circle= 2r

Circumference of a circle= 2πr

Or

Circumference of a circle= πd

Area of circle= πr^2

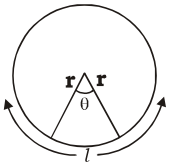


Radius of the circle = $\sqrt{\frac{Area\ of\ circle}{\pi}}$

or,

Area of semicircle = $\frac{1}{2}\pi r^2 = \frac{1}{8}\pi d^2$

Area of radius = $\frac{\theta}{360}\frac{\theta}{360} \times r^2$

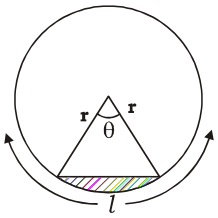


Perimeter of _____ = (2+ $\frac{\pi\theta}{180}$)r

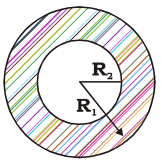
Area of a sector = ($\frac{\pi\theta}{360}$ - $\frac{1}{2}\sin\theta$) r^2

Perimeter of a sector = l+ $\frac{\pi r\theta}{180}$

Length of an arc = $\frac{\theta}{360}$ × Circumference of a circle= $\frac{\theta}{360}$ × 2 πr



Two concentric circles with radius R1 and R2 will have area



= π ($R1^2 + R2^2$)

Important Notice

The area of the path which is x meter wide inside a rectangular field = 2x (length + breadth- 2x)

The area of the path which is x meter outside a rectangular field = 2x (length + breadth+ 2x)

The area of the path which is x meter enclosing a square field = 4x (side + x)

The area of the path which is x meter only on one side of a square field = 4x (side - x)

Increase/ decrease in the area due to increase/ decrease in the length of sides can be calculated by= x+y+ $\frac{xy}{100}$

If the radius of a circle is increased by x%, then its area will increase by [2x + $\frac{x^2}{100}$] %.

If the radius of a circle is decreased by x%, then its area will decrease by [-2x + $\frac{x^2}{100}$] %.

Area of **square** formed inside a circle with radius 'r'= $2r^2$ and the side of that square will be $\sqrt{2r}$

Area of a triangle formed inside a semicircle of radius r = r^2

Area of the four walls of a room = 2 × height (length + breadth)

The maximum length of a rod inside a room= $\sqrt{(length)^2 + (breadth)^2 + (height)^2}$

If the side of a triangle, square, parallelogram etc. is multiplied by k then the perimeter will become k times and the area will k^2 times.

Mensuration Volume

Volume

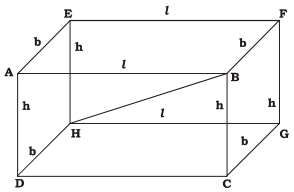
The amount of space an object occupies is called the volume of that object. The unit of volume would be cubic meter, cubic centimetre, cubic kilometre etc.

Surface

The plane through which the object is surrounded is called the surface. Surface area is the area of the plane. Therefore, its unit is square meter, square centimeters, square kilometers etc.

Cuboid

A six-face figure, with each face being a rectangle and opposite faces being equal is called cuboid. For example, book, brick etc.



Volume of a cuboid = length × breadth × height = l× b × h

Surface area of the faces of a cuboid = 2 (lb+ bh+ hl)

Diagonal of cuboid = $\sqrt{(length)^2 + (breadth)^2 + (height)^2}$

= $\sqrt{l^2 + b^2 + h^2}$

Rectangular Room

Area of the four walls of the room = 2 × height (length + breadth)

Area of roof or floor = length × breadth

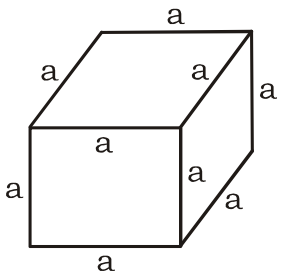
Diagonal of the room = $\sqrt{(length)^2 + (breadth)^2 + (height)^2}$

Cube

A six-face figure in which each face is a square and the opposite faces are equal is called the cube. If one side of the cube is a

Volume of the cube = (one side) ^{2}= a^2

Surface area of a cube = 6 × (one side) = $6a^2$



Diagonal of a cube = $\sqrt{3}$ × one side = $\sqrt{3}$a

Cylinder

A surface or solid bounded by two parallel planes and generated by a straight line moving parallel to the given planes and tracing a curve bounded by the planes and lying in a plane perpendicular or oblique to the given planes.

Cylinder has two surfaces, Curved surface and whole surface. The spherical surface is called curved surface and the plane surface is called whole surface.

Suppose the radius of the cylinder is r and the height is h,

Volume of cylinder= Area of circle × height = $\pi r^2 h$

Area of the curved surface of cylinder = Circumference of circle × height = 2 πrh

Total surface area of cylinder = Area of curved surface + 2 × Area of circle = 2 πrh

+ πr^2h = 2 πr (r+h)

Volume of a pipe = Πh ($r1^2 - r2^2$)

Curved surface area of a pipe = 2 πh (r1-r2)

Total surface area of a pipe= 2 πh (r1+r2) + 2Π ($r1^2 - r2^2$)

Cone

A cone is a solid that has a circular base and a single vertex. If the vertex is over the centre of the base, it is called a right cone. If it is not, it is called an oblique cone.

Volume of cone = $\frac{1}{3}$ Area of circle × height = $\frac{1}{3}\pi r^2 h$

Surface area of the curved surface of cone = πrl

Total surface area of the cone = πr (r+ l)

Slanting length of cone = $\sqrt{(radius)^2 + (height)^2}$

= $\sqrt{r^2 + h^2}$

Sphere

A three-dimensional surface, all points of which are equidistant from a fixed point is called a spherical object or figure.
A celestial body, such as a planet or star are spherical.

Volume of sphere = $\frac{4}{3}\pi r^3$

Surface area of sphere = $4\pi r^3$

Hemisphere

If the sphere is cut along its radius into two equal parts then the parts are called hemispheres.

Volume of Hemisphere = $\frac{2}{3}\pi r^3$

Curved surface area of Hemisphere = $2\pi r^2$

Total surface area of Hemisphere= $3\pi r^2$

Shell

It is a hollow geometric figure in which both the inner and outer surface are spherical. The centre for both the surfaces is same.

If the centre point be O and the radius of the outer surface is R and the radius of the inner surface is r, then

Volume of Shell= $\frac{4}{3}\pi (R^3 - r^3)$

Questions

1. A copper wire is bent in the form of equilateral triangle and has an area $121\sqrt{3}$ cm² If the same wire is bent into the form of a circle the area enclosed by the wire is:
एक कॉपर के तार को समबाहु त्रिभुज के रूप में मोड़ा जाता है जिसका क्षेत्रफल $121\sqrt{3}$ सेमी.² है। यदि उसी तार को वृत्त के रूप में मोड़ा जाए। तो उसका क्षेत्रफल क्या होगा ?
(A) 364.5 सेमी.² (B) 693.5 सेमी.²
(C) 346.5 सेमी.² (D) 639.5 सेमी.²

2. A wire when bent in the form of a square enclosed the region having an area 121 cm², the same wire is bent into the form of a circle then the area of the circle is :
एक तार को वर्ग के रूप में मोड़ा जाता है। जिसका क्षेत्रफल 121 सेमी² है। यदि तार को वृत्त के रूप में मोड़ा जाए तो वृत्त का क्षेत्रफल होगा ?
(A) 114 cm² (B) 180 cm²
(C) 154 cm² (D) 176 cm²

3. A 7 m wide road run outside around a circular park whose circumference is 176 m, then the area of road is :
176 मीटर परिधि वाले एक वृत्ताकार पार्क के चारों ओर 7 मीटर चौड़ाई का एक रास्ता बनाया गया है। तो रास्ते का क्षेत्रफल क्या होगा ?
(A) 1386 m² (B) 1472 m²
(C) 1512 m² (D) 1760 m²

4. A cow is tied on one corner of a rectangular field of size 30m × 20m by a 14m long rope. The area of region that she can graze is
एक गाय 30 मीटर लम्बे तथा 20 मीटर चौड़े आयताकार पार्क के एक कोने से 14 मीटर लम्बी रस्सी से बंधी है। तो वह मैदान का कितना भाग चर लेगी ?
(A) 350 m² (B) 196 m²
(C) 154 m² (D) 22 m²

5. Three horses are tied on one corner of a triangular field whose sides are 40m, 50m and 60m by a 7m long rope then find the area of field which can be grazed by these horses.
तीन घोड़े एक त्रिभुजाकार प्लॉट के तीनों कोनों पर 7 मीटर लम्बी रस्सी से बंधे हुए है। और उस प्लॉट की भुजायें 40 मीटर, 50 मीटर और 60 मीटर है। तो तीनों घोड़े इस मैदान का कितना भाग चर सकेंगे ?

(A) 26 m^2 (B) 32 m^2
(C) 77 m^2 (D) 63 m^2

6. The area of a circle is 38.50 cm^2 then its circumference is :
किसी वृत्त का क्षेत्रफल 38.50 सेमी^{2} है। तो इसकी परिधि क्या होगी ?

(A) 22 cm (B) 24 cm
(C) 26 cm (D) 32 cm

7. The perimeter of a square and circular field are same. If the area of circular field is 3850 cm^2, then the area of square is :
किसी वर्ग का परिमाप और वृत्त की परिधि बराबर है। यदि वृत्त का क्षेत्रफल 3850 सेमी^{2} है। तो वर्ग का क्षेत्रफल क्या होगा ?

(A) 4225 cm^2 (B) 3025 cm^2
(C) 2500 cm^2 (D) 2025 cm^2

8. The area of greatest circle inscribed inside a square of side 21 cm is
उस बड़े से बड़े वृत्त का क्षेत्रफल क्या होगा जो 21 सेमी. की भुजा वाले वर्ग के अंदर बना हैं ?

(A) 344.5 cm^2 (B) 364.5 cm^2
(C) 346.5 cm^2 (D) 366.5 cm^2

9. The length of the side of a square is 14 cm. Taking vertex of the square as centre, four equal circles are drawn with radius of 7 cm. Find the area of the region of the square that remains outsides the region of circles?
किसी वर्ग की भुजा 14 सेमी. है। प्रत्येक शीर्ष को केन्द्र मानकर 7 सेमी. त्रिज्या के चार वृत्त खींचे गये हैं। तो वृत्त के बाहर वर्ग का क्षेत्रफल क्या होगा ?

(A) 42 cm^2 (B) 44 cm^2
(C) 46 cm^2 (D) 48 cm^2

10. The perimeter of an isosceles triangle is 36 cm and its base is 16 cm. So what will be its area?
एक समद्विबाहु त्रिभुज का परिमाप 36 सेमी. है और इसका आधार 16 सेमी. है। तो इसका क्षेत्रफल क्या होगा ?

(A) 48 cm^2 (B) 54 cm^2
(C) 63 cm^2 (D) 77 cm^2

11. The base of an isosceles triangle is 24 cm and its area is 192 cm^2. Find its perimeter.
एक समद्विबाहु त्रिभुज का आधार 24 सेमी. है और इसका क्षेत्रफल 192 सेमी^{2}. है। तो इसका परिमाप क्या होगा ?

(A) 36 cm (B) 32 cm
(C) 48 cm (D) 64 cm

12. Each of equal sides of an isosceles triangle is 4 cm greater than its height. If the base is 24 cm, calculate the perimeter of triangle.
किसी समद्विबाहु त्रिभुज की प्रत्येक बराबर भुजा की लम्बाई ऊँचाई से 4 सेमी. अधिक है। यदि इसका आधार 24 सेमी. है। तो इसका परिमाप क्या होगा ?

(A) 32 cm (B) 64 cm
(C) 48 cm (D) 36 cm

13. The perimeter of rhombus is 52 cm. If one diagonal is 24 cm, then find its area.
एक समचतुर्भुज का परिमाप 52 सेमी. है और इसके एक विकर्ण की लम्बाई 24 सेमी. है। तो इसका क्षेत्रफल क्या होगा ?

(A) 120 cm^2 (B) 110 cm^2
(C) 100 cm^2 (D) 130 cm^2

14. The perimeter of rhombus is 46 cm. If the height of rhombus is 8 cm, then its area is
एक समचतुर्भुज का परिमाप 46 सेमी. है। यदि इसकी ऊँचाई 8 सेमी. है। तो इसका क्षेत्रफल क्या होगा ?

(A) 90 cm^2 (B) 94 cm^2
(C) 92 cm^2 (D) 96 cm^2

15. Area of a rectangle is 5 times the area of triangle. If the length of a rectangle is 2 times the height of the triangle then find the ratio of base of triangle and breath of the rectangle.
एक आयत का क्षेत्रफल त्रिभुज के क्षेत्रफल का 5 गुना है। यदि आयत की लम्बाई त्रिभुज की ऊँचाई की 2 गुनी हो तो त्रिभुज के आधार और आयत की चौड़ाई का अनुपात क्या होगा ?

(A) 4 : 3 (B) 4 : 9
(C) 4 : 7 (D) 4 : 5

16. The area of a circle is 346.5 cm^2. Find its circumference (in cm).

एक वृत्त का क्षेत्रफल 346.5 वर्ग सेमी है। इसका परिधि (सेमी. में) ज्ञात करें।

(A) 132 (B) 38
(C) 66 (D) 76

17. Find the total surface area (in square cm) of the surface of a cube with sides 7.5 cm.
7.5 सेमी. भुजा वाले एक घन के सतह का कुल क्षेत्रफल (वर्ग सेमी. में) ज्ञात करें।

(A) 364.5 (B) 446
(C) 337.5 (D) 684

18. If the height of the equilateral triangle is $2\sqrt{3}$ cm, then determine the area (in cm^2) of the equilateral triangle.
यदि समबाहु त्रिभुज की ऊंचाई $2\sqrt{3}$ सेमी. है, तो समबाहु त्रिभुज के क्षेत्रफल (सेमी.^{2} में) निर्धारित करें।

(A) 6 (B) $2\sqrt{3}$
(C) $4\sqrt{3}$ (D) 12

19. ABCD is a quadrilateral, in which BD = 40 cm. The lengths of the vertices drawn from the opposite ends of BD are 16 cm and 12 cm. The area of a quadrilateral (in square cm) is.
ABCD एक चतुर्भुज है, जिसमें BD = 40 सेमी. है। सम्मुख शीर्षों से BD पर खींचे गए लम्बों की लम्बाईयाँ। 16 सेमी. तथा 12 सेमी. हैं। चतुर्भुज का क्षेत्रफल (वर्ग सेमी. में) है।

(A) 560 (B) 580
(C) 600 (D) 500

20. There are two pieces of wire and each is 5024 cm in length. A square is made from one piece of wire and a circle from another. Find the ratio of the area of the square to the area of the circle.
तार के दो टुकड़े हैं और प्रत्येक की लम्बाई 5024 सेमी. है। तार के एक टुकड़े से एक वर्ग तथा दूसरे से एक वृत्त बनाया जाता है। वर्ग के क्षेत्रफल का वृत्त के क्षेत्रफल से अनुपात है।

(A) 4 : π (B) π : 8
(C) 8 : π (D) π : 4

21. When the radius of a circle is 3 times, how many times will the new circumference be from its former circumference?
एक वृत्त की त्रिज्या 3 गुनी करने पर नई परिधि अपनी पूर्व परिधि से कितने गुना होगी ?

(A) 3 (B) $\frac{1}{3}$
(C) 9 (D) इनमें से कोई नहीं

22. A room is 12 m long, 9 m wide and 8 m high. What is the maximum length of the bamboo that can be kept in it?
एक कमरा 12 मी. लम्बा, 9 मी. चौड़ा तथा 8 मी. ऊँचा है। इसमें अधिकतम किस लम्बाई का बाँस रखा जा सकता है ?

(A) 17 मी. (B) 16 मी.
(C) 15 मी. (D) 14 मी.

23. How many bricks would be required to make a wall of 3 m , 1.5 m high and 0.4 m thick, if the size of each brick was 30 cm × 15 cm × 8 cm?
3 मी. लम्बी 1.5 मी. ऊँची और 0.4 मी. मोटी दीवार बनाने में कितनी ईंटों की आवश्यकता होगी, यदि प्रत्येक ईंट का आकार 30 सेमी × 15 सेमी × 8 सेमी ?

(A) 502 (B) 550
(C) 500 (D) 501

24. The dimensions of a cuboid are 5 cm × 2 cm × 5 cm. How many such cubes can be joined together to form a cube.
एक घनाभ की विमाएँ 5 सेमी. × 2 सेमी. × 5 सेमी. हैं। ऐसे कितने घनाभों को परस्पर जोड़कर एक घन बनाया जा सकता है।

(A) 32 (B) 16
(C) 25 (D) 20

25. The square of the hypotenuse in a right triangle is equal to twice the product of the remaining two sides. If the base of this triangle is 12 cm, then the length of the triangle will be.
एक समकोण त्रिभुज में कर्ण का वर्ग, शेष दो भुजाओं के गुणनफल के दोगुने के बराबर है। यदि इस त्रिभुज का आधार 12 सेमी. हो, तो त्रिभुज का लम्ब होगा

(A) 12 सेमी (B) 10/2 सेमी
(C) 9 सेमी (D) 5 सेमी

26. The length, width and depth of a cuboid is 20 cm and its diagonal is $4\sqrt{5}$ cm. The surface area of the cuboid will be.
एक घनाभ की लम्बाई, चौड़ाई तथा गहराई का योग 20 सेमी. तथा इसका विकर्ण $4\sqrt{5}$ सेमी. है। घनाभ का पृष्ठीय क्षेत्रफल होगा

(A) 320 सेमी^{2} (B) 365 सेमी^{2}
(C) $380\sqrt{5}$ सेमी^{2} (D) 400 सेमी^{2}

27. The inner base of a rectangular box is 15 cm long and $12\frac{1}{2}$ cm wide and its height is $7\frac{1}{2}$ cm. This box is filled with cubes with $2\frac{1}{2}$ cm sides. Number of cubes that can be filled in it will be.
किसी आयताकार बक्से का आन्तरिक आधार 15 सेमी. लम्बा और $12\frac{1}{2}$ सेमी. चौड़ा है। और इसकी ऊँचाई $7\frac{1}{2}$ सेमी. है। इस बक्से को $2\frac{1}{2}$ सेमी. भुजा वाले घनों से भरा जाता है। घनों की संख्या होगी

(A) 90 (B) 120
(C) 45 (D) 60

28. The perimeter of a trapezium is 58 cm and the sum of the lengths of its parallel sides is 20 cm. If its area is 152 cm2, then the distance between the parallel sides (in cm) is.
किसी समलम्ब का परिमाप 58 सेमी है। और इसकी असमान्तर भुजाओं की लम्बाइयों का योग 20 सेमी है। यदि इसका क्षेत्रफल 152 सेमी.^{2} हो, तो समान्तर भुजाओं के बीच की दूरी (सेमी में) है।

(A) 9.8 (B) 15.2
(C) 6 (D) 8

29. The bases of the two cylinders have radii in a ratio of 2: 3 and their heights have a ratio of 5: 3. Their volumes are in the ratio
दो बेलनों के आधारों की त्रिज्याओं में 2 : 3 का अनुपात है और उनकी ऊँचाइयों में 5 : 3 का अनुपात है। उनके आयतनों में अनुपात है।

(A) 7 : 6 (B) 10 : 9
(C) 4 : 9 (D) 20 : 27

30. The perimeter of a trapezium is 104 cm, the lengths of its two parallel sides are 18 cm and 22 cm and its height is 16 cm. The area of trapezium is (in cm2).
किसी समलम्ब का परिमाप 104 सेमी. है, उसकी दोनों असमान्तर भुजाओं की लम्बाईयाँ 18 सेमी. तथा 22 सेमी. हैं तथा उसकी ऊँचाई 16 सेमी. है। समलम्ब का क्षेत्रफल (सेमी^{2} में) है।

(A) (B)
(C) (D)