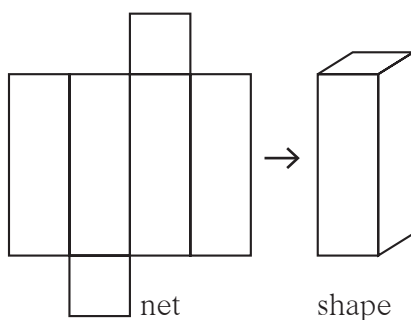




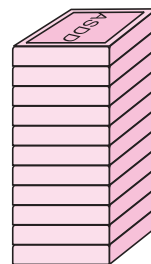
Let's recall.

Cuboids or Rectangular Prisms



You have learnt to make a cuboid from its net.

Give examples of how the same shape can be obtained in other ways.

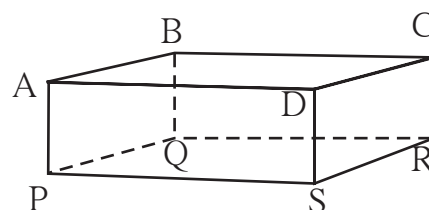


Let's learn.

Rectangular Prisms

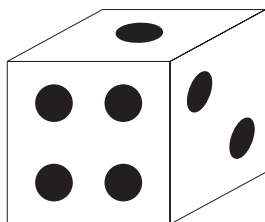
All the faces of a cuboid are rectangular and its opposite faces are identical or congruent. The cuboid is also a **quadrangular prism**. How many edges does the cuboid have? How many vertices does it have? How many faces does it have?

In the figure here, points A and B are two of the eight vertices. Seg AB and seg AP are the names of two edges and ABCD is the name of one face.



A cuboid has **12 edges**, **8 vertices** and **6 faces**.

Cubes

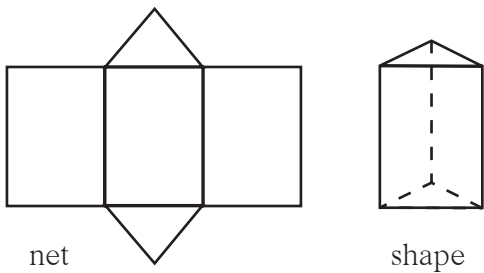


There is a dice in the figure alongside. What difference do you see in the shape of a dice and that of a cuboid? When all the faces of a quadrangular prism are equal squares, it is called a cube.

- How many faces does a cube have?
- How many edges does a cube have?
- How many vertices does a cube have?



Triangular Prisms



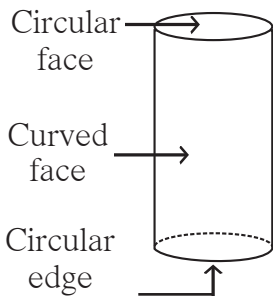
What is the shape of the faces at the base and at the top of the figure alongside?

What is the shape of the faces on the sides?

Such a figure is called a **triangular prism**.

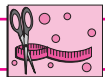
How many edges, vertices and faces does a triangular prism have?

Cylinders



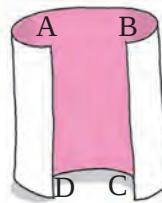
You must have seen a tall box with a circular base. A tin like this is a familiar example of a cylinder. If the tin is closed, it is a closed cylinder. A closed cylinder has two flat circular faces and one curved face. The cylinder has two circular edges and no vertex.

Give some examples of cylinders you are familiar with.



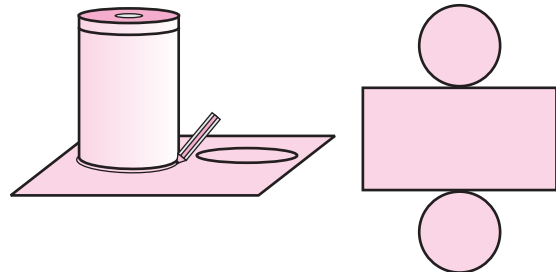
Try this.

- Activity :**
- Take a rectangular sheet.
 - Bring together its opposite sides.
 - A hollow cylinder will be formed.



Activity : Take a cylindrical tin. Take a rectangular sheet with one side equal to the height of the tin. Wrap it around the tin to cover it completely and cut away the extra paper. Then unfold it and spread it out on a table.

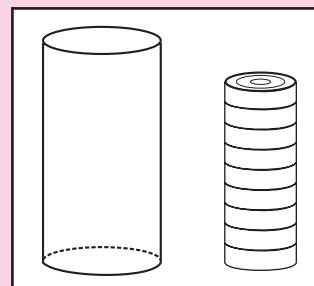
Take another sheet. Place the box on it and draw its circular outline. Cut away the paper around it. Cut out another circle like this one. Place these discs next to the rectangular paper as shown in the figure above. The figure obtained is the net of the closed cylinder. Make a cylinder using this net.



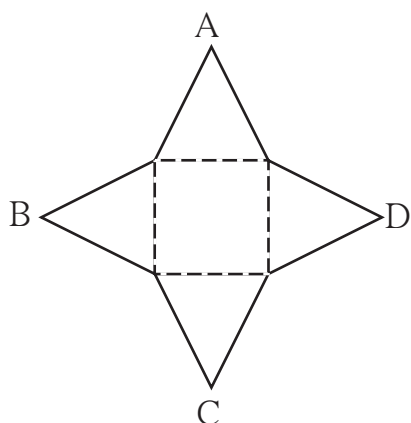
Can you tell?

When playing carrom, you make a pile of the pieces as shown in the picture. What is the shape of this pile?

If you place a number of CD's or round biscuits one on top of the other, what shape do you get?



Try this.



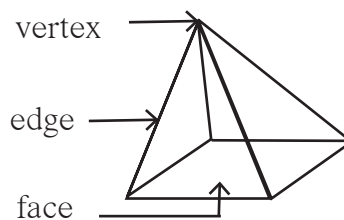
This shape is called a **pyramid**. The top or apex of this shape is pointed like a needle. As the base of this shape is a quadrilateral, it is called a **quadrangular pyramid**. Count the edges, vertices and faces of this shape.

A quadrangular pyramid has 5 faces, 8 edges and 5 vertices.

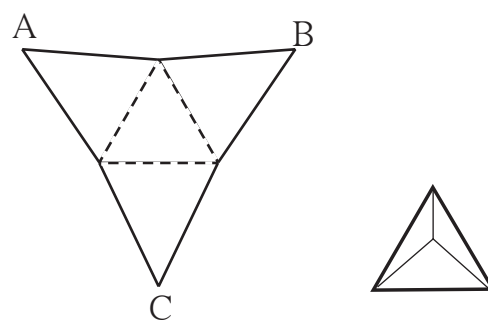
Activity : Draw the net shown alongside on a card-sheet and cut it out. Fold along the dotted lines of the triangle in the centre and bring together the triangles on the sides so that the vertices A, B and C meet at a point. You will get a pyramid. The base of this pyramid is a triangle. Hence, it is called a **triangular pyramid**. Count and write the number of its edges, vertices and faces.

Activity : A net is shown here. It has identical triangular sides. Draw a figure like this on a card-sheet and cut it out. Fold along the dotted lines of the square and bring the sides together so that the vertices A, B, C and D meet at a point.

You will get a shape like the one shown below. Its base is a square and its other standing faces are triangles.



Quadrangular Pyramid



Triangular Pyramid





Now I know -

The top and the bottom faces of a prism are identical. The other faces of triangular, quadrangular, etc. prisms are rectangular.

The standing faces of a pyramid are triangular.

The name of a prism or a pyramid depends upon the shape of its base.

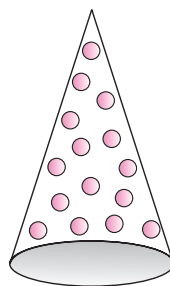
Cones

You are familiar with examples of cones.

You can see two of them in the pictures below.



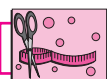
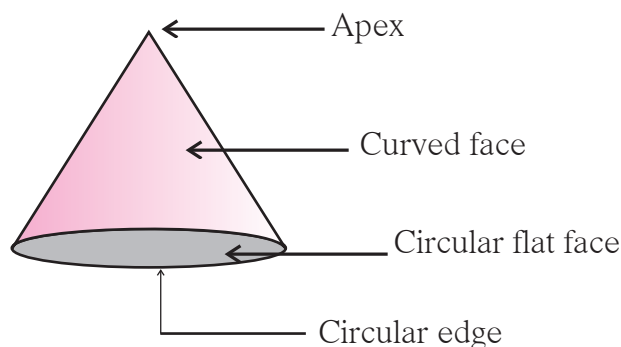
This cone has been closed after filling it with ice-cream. Its circular top is closed.



This is a clown's cap. The circular base of this cap is not closed.

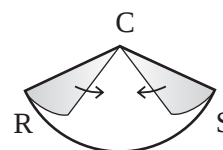
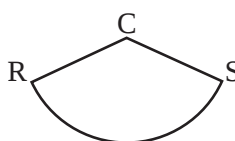
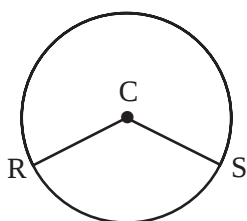
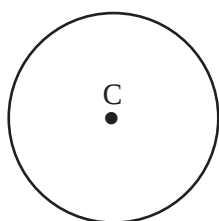
The tip of the cone is called its **apex**. A cone that is closed by a flat disc has one curved face, one circular flat face and one circular edge.

An open cone has a curved face and a circular edge, but no flat face.



Try this.

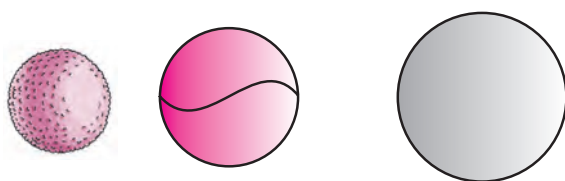
- Using a compass, draw a circle with centre C on a paper.
- Draw two radii of the circle, CR and CS.
- Cut out the circle.
- Cut along the radii and obtain two pieces of the circle.
- Bring together the sides CR and CS of each piece.



On completing the activity, what shapes did you get?



Spheres



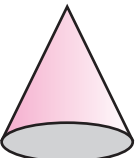
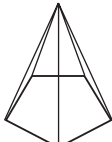
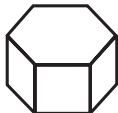
The shape of a laddoo, a ball, a shot put is called a sphere.

The sphere has just **one curved face**.

It does not have any vertices or edges.

Practice Set 41

* Write the number of faces, edges and vertices of each shape in the table.

Name	Cylinder	Cone	Pentagonal pyramid	Hexagonal pyramid	Hexagonal prism	Pentagonal prism
Shape						
Faces						
Vertices						
Edges						

SSS

Answers

Practice Set 1

- (1) Collinear points: (i) point M, point O, point T (ii) point R, point O, point N
 (2) ray OM, ray OP, ray ON, ray OT, ray OS, ray OR
 (3) seg MT, seg RN, seg OP, seg ON, seg OT, seg OS, seg OR, seg OM
 (4) line MT, line RN
- line l , line AB, line AC, line AD, line BC, line BD, line CD
- (i) $\leftrightarrow$ (c), (ii) $\leftrightarrow$ (d), (iii) $\leftrightarrow$ (b), (iv) $\leftrightarrow$ (a)
- Parallel lines: (i) line b , line m , line q (ii) line a , line p
 Concurrent lines: (i) line a , line b , line c , line AC (ii) line p , line q , line AD
 Point of concurrence : Point A, Point D

Practice Set 2

- (1) $\leftrightarrow$ (b), (2) $\leftrightarrow$ (c), (3) $\leftrightarrow$ (d), (4) $\leftrightarrow$ (a)
- (1) acute angle (2) zero angle (3) reflex angle (4) complete angle
 (5) straight angle (6) obtuse angle (7) obtuse angle (8) right angle
- (a) acute angle (b) right angle (c) reflex angle (d) straight angle (e) zero angle
 (f) complete angle

Practice Set 3

Practice Set 4

- Negative numbers: $-5, -2, -49, -37, -25, -4, -12$
 Positive numbers: $+4, 7, +26, 19, +8, 5, 27$
- Shimla: -7°C , Leh: -12°C , Delhi: $+22^{\circ}\text{C}$, Nagpur: $+31^{\circ}\text{C}$
- (1) -512 m (2) 8848 m (3) 120 m (4) -2 m

Practice Set 5

- (1) 14 (2) 6 (3) -1 (4) -5 (5) -8 (6) -7

2.					
	+	8	4	-3	-5
	-2	$-2 + 8 = +6$	2	-5	-7
	6	$6 + 8 = 14$	10	3	1
	0	$0 + 8 = 8$	4	-3	-5
	-4	$-4 + 8 = 4$	0	-7	-9

Practice Set 6

★

Numbers	47	+52	-33	-84	-21	+16	-26	80
Opposite Numbers	-47	-52	+33	+84	+21	-16	+26	-80

Practice Set 7

★

(1) $-4 < 5$	(2) $8 > -10$	(3) $+9 = +9$	(4) $-6 < 0$
(5) $7 > 4$	(6) $3 > 0$	(7) $-7 < 7$	(8) $-12 < 5$
(9) $-2 > -8$	(10) $-1 > -2$	(11) $6 > -3$	(12) $-14 = -14$

Practice Set 8

★

-	6	9	-4	-5	0	+7	-8	-3
3	-3	-6	7	8	3	-4	11	6
8	2	-1	12	13	8	1	16	11
-3	-9	-12	1	2	-3	-10	5	0
-2	-8	-11	2	3	-2	-9	6	1

Practice Set 9

- (i) $\frac{37}{5}$ (ii) $\frac{31}{6}$ (iii) $\frac{19}{4}$ (iv) $\frac{23}{9}$ (v) $\frac{12}{7}$
- (i) $4\frac{2}{7}$ (ii) $1\frac{3}{4}$ (iii) $1\frac{3}{12}$ or $1\frac{1}{4}$ (iv) $1\frac{3}{8}$ (v) $5\frac{1}{4}$ (vi) $2\frac{6}{7}$
- (i) $\frac{9}{5}$ kg (ii) $\frac{11}{5}$ m

Practice Set 10

- (i) $8\frac{2}{3}$ (ii) $4\frac{3}{4}$ (iii) $7\frac{12}{35}$ (iv) $5\frac{8}{15}$
- (i) $2\frac{1}{12}$ (ii) $2\frac{1}{6}$ (iii) $1\frac{1}{40}$ (iv) $4\frac{3}{10}$
- (1) 6 kg, ₹192 (2) $\frac{4}{15}$ (3) 340 l



Practice Set 11

1. (1) $\frac{5}{6}, \frac{10}{6}$ (2) $\frac{3}{5}, \frac{7}{5}$ (3) $\frac{3}{7}, \frac{10}{7}$

Practice Set 12

1. (i) $\frac{7}{20}$ (ii) $\frac{12}{35}$ (iii) $\frac{20}{81}$ (iv) $\frac{8}{77}$ (v) $\frac{7}{10}$ (vi) $\frac{9}{8}$ (vii) 1 (viii) $\frac{9}{17}$
 2. 6 acres
 3. 1,80,000

Practice Set 13

1. (i) $\frac{1}{7}$ (ii) $\frac{3}{11}$ (iii) $\frac{13}{5}$ (iv) $\frac{1}{2}$ (v) $\frac{7}{6}$
 2. (i) $\frac{8}{3}$ (ii) $\frac{10}{27}$ (iii) $\frac{33}{35}$ (iv) $\frac{77}{48}$
 3. $\frac{1}{750}$ part

Practice Set 14

1. Place Value: 70, 8, 0.02
 2. (1) 932.697 (2) 739.65 (3) 70.151
 3. (1) 83.615 (2) 534.79 (3) 182.819
 4. 55.465 km
 5. ₹ 486 6. 2.5 kg 7. 30.6 km

Practice Set 15

1. (1) $\frac{3}{5} = \frac{3 \times \boxed{2}}{5 \times \boxed{2}} = \frac{\boxed{6}}{10} = \boxed{0.6}$ (2) $\frac{25}{8} = \frac{25 \times \boxed{125}}{8 \times 125} = \frac{\boxed{3125}}{1000} = 3.125$
 (3) $\frac{21}{2} = \frac{21 \times \boxed{5}}{2 \times \boxed{5}} = \frac{\boxed{105}}{10} = \boxed{10.5}$ (4) $\frac{22}{40} = \frac{11}{20} = \frac{11 \times \boxed{5}}{20 \times 5} = \frac{\boxed{55}}{100} = \boxed{0.55}$
 2. (1) 0.75 (2) 0.8 (3) 1.125 (4) 0.85 (5) 0.9 (6) 0.28 (7) 0.095
 3. (1) $\frac{275}{10}$ (2) $\frac{7}{1000}$ (3) $\frac{908}{10}$ (4) $\frac{3915}{100}$ (5) $\frac{312}{100}$ (6) $\frac{704}{10}$

Practice Set 16

1. 14.265 2. 10.9151 3. (1) 3.78 (2) 24.063 (3) 1.14 (4) 3.528
4. 94.5 kg, ₹ 3969 5. 2.25 m

Practice Set 17

1. (1) 2.4 (2) 3.5 (3) 10.3 (4) 1.3 2. 1000 trees or 1002 trees
3. 0.425 km 4. ₹ 38000

Practice Set 18

- * (1) Temperature on vertical line, Cities on horizontal line (2) Chandrapur
(3) Panchgani and Matheran, Pune and Nashik (4) Pune and Nashik
(5) 10 °C

Practice Set 19

Practice Set 20

1. Figures having more than one axis of symmetry (1), (2) and (4)
2. Letters with an axis of symmetry : A, B, C, D, E, H, I, K, M, O, T, U, V, W, X, Y
Letters having more than one axis of symmetry : H, I, O, X

Practice Set 21

Practice Set 22

- * Basket of 3: 111, 369, 435, 249, 666, 450, 960, 432, 999, 72, 336, 90, 123, 108
Basket of 4: 356, 220, 432, 960, 72, 336, 108
Basket of 9: 369, 666, 450, 432, 999, 72, 90, 108

Practice Set 23

- (1) Factors of 12: 1, 2, 3, 4, 6, 12
Factors of 16: 1, 2, 4, 8, 16
Common Factors: 1, 2, 4



- (2) Factors of 21: 1, 3, 7, 21
 Factors of 24: 1, 2, 3, 4, 6, 8, 12, 24
 Common Factors: 1, 3
- (3) Factors of 25: 1, 5, 25
 Factors of 30: 1, 2, 3, 5, 6, 10, 15, 30
 Common Factors: 1, 5
- (4) Factors of 24: 1, 2, 3, 4, 6, 8, 12, 24
 Factors of 25: 1, 5, 25
 Common Factor: 1
- (5) Factors of 56: 1, 2, 4, 7, 8, 14, 28, 56
 Factors of 72: 1, 2, 3, 4, 6, 8, 9, 18, 24, 36, 72
 Common Factors: 1, 2, 4, 8

Practice Set 24

- (1) 15 (2) 16 (3) 1 (4) 7 (5) 24 (6) 9 (7) 12 (8) 25 (9) 6 (10) 75
- 3 metres 3. 4 metres 4. 28 students
- 90 kg, 29 bags of basmati, 22 bags of Indrayani

Practice Set 25

- (1) 45 (2) 30 (3) 84 (4) 60 (5) 88
- (1) 100 children (2) 240 beads (3) 360 laddoos (4) 120 seconds
 (5) $\frac{65}{225}$, $\frac{66}{225}$, $\frac{131}{225}$

Practice Set 26

- * $16 \div 2 = 10 - 2$, $5 \times 2 = 37 - 27$, $9 + 4 = 6 + 7$,
 $72 \div 3 = 8 \times 3$, $4 + 5 = 19 - 10$

Practice Set 27

- (1) $x + 3$ (2) $x - 11$ (3) $15x$ (4) $4x = 24$
- (1) Subtract 9 from both sides. (2) Add 4 to both sides.
 (3) Divide both sides by 8. (4) Multiply both sides by 6.
- (1) No (2) Yes (3) Yes (4) No
- (1) $y = 6$ (2) $t = 3$ (3) $x = 13$ (4) $m = 23$ (5) $p = 36$ (6) $x = -5$
 (7) $m = -7$ (8) $p = -5$
- (1) 210 sheep (2) 19 bottles, 4750 gm, that is, 4.75 kg (3) 50 kg



Practice Set 28

1. (1) 3:7 (2) 9:7 (3) 4:5 (4) 7:5 (5) 7:13 (6) 11:9
2. (1) $\frac{5}{8}$ (2) $\frac{1}{3}$ (3) $\frac{1}{4}$ (4) $\frac{5}{4}$ (5) $\frac{9}{4}$ (6) $\frac{4}{1}$ (7) $\frac{3}{5}$ (8) $\frac{3}{2}$ (9) $\frac{5}{4}$
3. $\frac{4}{3}$ 4. $\frac{3}{5}$ 5. $\frac{4}{11}$ 6. (1) $\frac{1}{3}$ (2) $\frac{6}{7}$ (3) $\frac{5}{17}$

Practice Set 29

- * (1) ₹ 2880 (2) ₹ 260 (3) ₹ 5136 (4) 216 kg (5) 6 hours, 440 km
(6) 76 litres (7) 5600 kg (8) 208 trees (9) 4 ponds, ₹ 72000

Practice Set 30

- * (1) 92% (2) 70%, 30% (3) 14625 sq.m. (4) 4 messages (5) 96%
(6) The proportion of women was greater in Jambhulgaon.

Practice Set 31

1. (1) Profit ₹ 500 (2) Loss ₹ 10 (3) Profit ₹ 99 (4) Loss ₹ 80
2. ₹ 400 Profit 3. ₹ 225 Profit 4. ₹ 7050 5. ₹ 50 Loss 6. ₹ 200 Loss 7. ₹ 1500 Profit

Practice Set 32

1. Loss ₹ 50 2. Profit ₹ 8000 3. Loss ₹ 150 4. ₹ 941 5. Each ₹ 14500
6. Profit ₹ 9240

Practice Set 33

1. Transaction with the shirt was more profitable 3. 25% Profit
2. Shamrao's transaction was more profitable

Practice Set 34

1. 75% Profit 2. 5% Loss 3. $16\frac{2}{3}\%$ Profit 4. $7\frac{1}{2}\%$ Profit 5. $11\frac{1}{9}\%$ Profit
6. 20% Loss

Practice Set 35

1. ₹ 600 2. ₹ 9169 3. ₹ 28000 4. ₹ 2115

Practice Set 36

- Right angle, Obtuse angle, Acute angle 2. Equilateral, Scalene, Isosceles
- Road AC is shorter because the sum of the lengths of any two sides of a triangle is always greater than the third side.
- (1) Scalene triangle (2) Isosceles triangle (3) Equilateral triangle (4) Scalene triangle
- Triangles can be drawn. (2), (5), (6) Triangles cannot be drawn. (1), (3), (4)

Practice Set 37

- ★ (1) Pentagon (2) Hexagon (3) Heptagon (4) Octagon

Practice Set 38

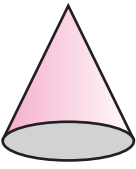
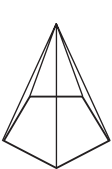
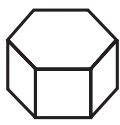
- (1) $\angle X$ and $\angle Z$, $\angle Y$ and $\angle W$ (2) seg XY and seg ZW, seg XW and seg YZ
(3) seg XY and seg YZ, seg YZ and seg WZ; seg WZ and seg XW, seg XW and seg XY
(4) $\angle X$ and $\angle Y$, $\angle Y$ and $\angle Z$, $\angle Z$ and $\angle W$, $\angle X$ and $\angle W$ (5) Diagonal XZ and Diagonal YW
(6) $\square YZWX$, $\square ZWXY$, $\square XYZW$ etc.
- Quadrilateral - 4, Octagon - 8, Pentagon - 5, Heptagon - 7, Hexagon - 6 5. 720°

Practice Set 39

Practice Set 40

Practice Set 41

★

Name	Cylinder	Cone	Pentagonal pyramid	Hexagonal pyramid	Hexagonal prism	Pentagonal prism
Shape						
Faces	1 curved	1 curved 1 flat	6	7	8	7
Vertices	0	1	6	7	12	10
Edges	2 circular	1 circular	10	12	18	15