

SIGMABUDGIE · GRADE 2

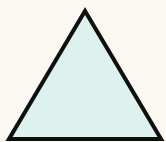
Shapes

A gentle walkthrough & a 24-question exam

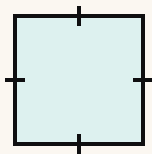
Part 1 walks through flat shapes, solid shapes, and halves from the very beginning, with drawings. Part 2 is a 24-question exam that starts easy and slowly builds to harder, ISEE-style reasoning questions. Work through the lesson together first, then let your child try the exam. The answer key at the back explains every question.

1 · Flat shapes

Flat shapes have **sides** (the straight edges) and **corners** (where two sides meet). A **triangle** has 3 sides and 3 corners. A **square** and a **rectangle** have 4. A **circle** is round: no sides, no corners.



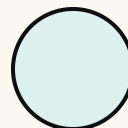
triangle: 3 sides



square: 4 sides



rectangle: 4 sides

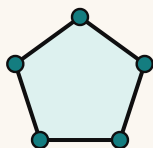


circle: 0 sides

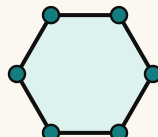
2 · Count the sides

A shape's name tells how many sides it has. **Pentagon**: 5. **Hexagon**: 6. **Octagon**: 8, like a stop sign.

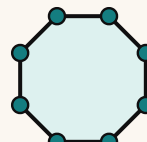
Count the corners too: a shape always has the same number of corners as sides.



pentagon: 5 sides, 5 corners



hexagon: 6

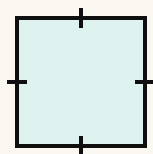


octagon: 8

3 · Square or rectangle?

Both have 4 sides and 4 square corners. A **square** has all 4 sides the **same length** (the tick marks). A **rectangle** has 2 long sides and 2 short sides.

A square is a special rectangle, so every square is a rectangle too.



square: all sides equal

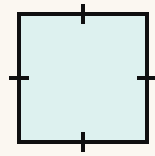


rectangle: long and short

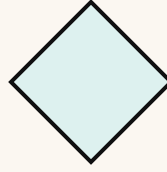
4 • Turn it: still the same shape

Turn a square on its corner and it is **still a square**. Some people call it a diamond, but the sides and corners have not changed.

A shape's name depends on its sides and corners, not on which way it is sitting.



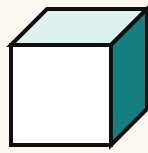
a square



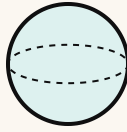
the same square, turned

5 • Solid shapes

Solid shapes are not flat: you can hold them. A **cube** is like a dice. A **sphere** is like a ball. A **cylinder** is like a can. A **cone** is like a party hat.



cube



sphere



cylinder

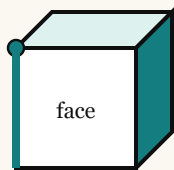


cone

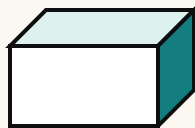
6 • Faces: the flat parts

A **face** is a flat side of a solid. A cube has **6** square faces. A box (rectangular prism) has 6 faces too. A cylinder has 2 flat faces, top and bottom. A sphere has none.

Solids with a curved part can **roll**: sphere, cylinder, cone. A cube can only slide.



a face is one flat side



box: 6 faces



pyramid: a square bottom and 4 triangle faces

7 • Shapes in the world

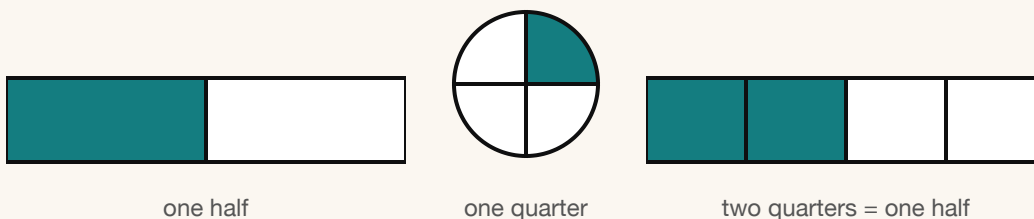
Look around: a ball is a **sphere**, a soup can is a **cylinder**, a dice is a **cube**, a cereal box is a **rectangular prism**, an ice-cream cone is a **cone**.

Flat shapes are everywhere too: a clock face is a circle, a door is a rectangle, a slice of pizza is a triangle.

8 · Halves and quarters of a shape

Cut a shape into **2 equal parts** and each part is a **half**. Cut it into **4 equal parts** and each is a **quarter**.

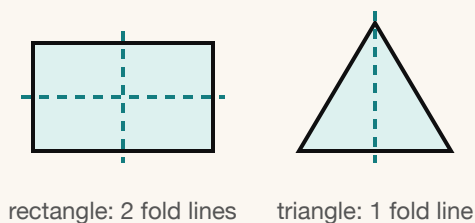
The parts must be the **same size**. A rectangle cut into 2 parts of different sizes is not cut in half.



9 · Symmetry: the fold line

A shape is **symmetrical** if you can fold it so both halves match exactly. The fold line is the **line of symmetry**.

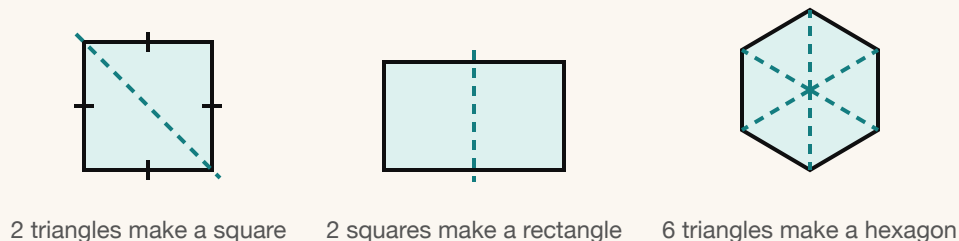
A square has 4 fold lines. A rectangle has 2. A triangle with 2 equal sides has 1, straight down the middle.



10 · Shapes made of shapes

Two triangles can make a **square**. Two squares side by side make a **rectangle**. Six triangles make a **hexagon**.

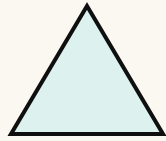
Look for the cut lines and count the pieces.



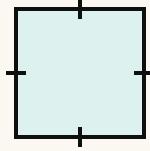
11 • Sorting by a rule

Shapes can be sorted by a rule: "has 4 sides," "has a curve," "has 3 corners." A triangle, a square, and a hexagon all have straight sides. A circle and an oval have curves.

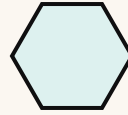
Which does not belong? Find the one that breaks the rule the others share.



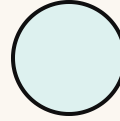
A



B



C



D

D does not belong: it has no corners

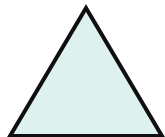
12 • Shape riddles

"I have 4 sides. All my sides are the same length. What am I?" A **square**. "I have no corners and I can roll." A **sphere**. "I have 6 sides." A **hexagon**.

Read every clue, then pick the shape that fits all of them. You are ready for the test! 🎉

Read each drawing first, then choose the best answer. Take your time, there is no clock here. Questions start gentle and get harder toward the end. Circle your answer.

1 How many sides does this shape have?



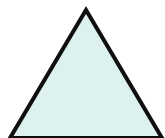
A 4

C 2

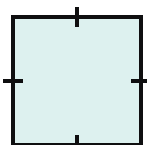
B 3

D 6

2 Which shape has 4 sides?



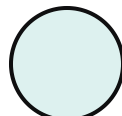
A



B



C



D

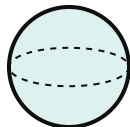
A A

C D

B C

D B

3 What is this solid shape called?



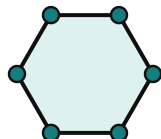
A sphere

C cube

B circle

D cylinder

4 How many corners does a hexagon have?



A 5

C 6

B 8

D 4

5 Which solid shape is like a soup can?

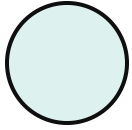
A cube

B sphere

C cone

D cylinder

6 How many corners does a circle have?



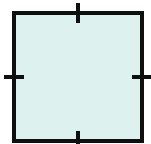
A 1

B 0

C 2

D 4

7 Which shape is a square?



A



B

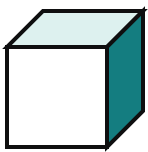
A A

B B

C Both

D Neither

8 How many faces does a cube have?



A 4

B 8

C 6

D 12

9 What part of the circle is shaded?

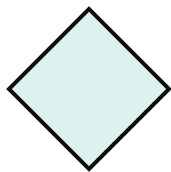
A one half

B one quarter

C one third

D three quarters

10 This shape has 4 equal sides and 4 square corners. What is it?



A a diamond that is not a square

B a triangle

C a rectangle that is not a square

D a square

11 Which solid shape can roll?

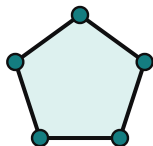
A cube

B rectangular prism

C sphere

D pyramid

12 What is this shape called?



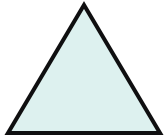
A pentagon

B hexagon

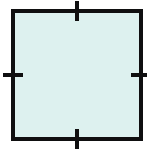
C square

D octagon

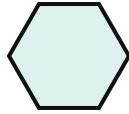
- 13 Which shape does NOT belong with the others?



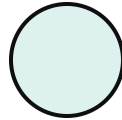
A



B



C



D

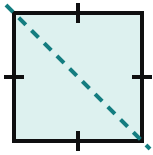
A A

B B

C C

D D

- 14 A square is cut along the dotted line. What two shapes are made?



A 2 squares

B 2 triangles

C 2 rectangles

D 4 triangles

- 15 How many flat faces does a cylinder have?

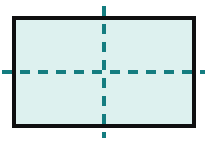
A 2

B 0

C 1

D 6

- 16 How many lines of symmetry does a rectangle have?



A 4

B 1

C 2

D 0

- 17 I have 4 sides. All my sides are the same length. What am I?

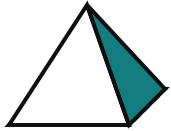
A a rectangle that is not a square

B a triangle

C a square

D a pentagon

18 What shape is the bottom of this pyramid?



A a square

B a triangle

C a circle

D a hexagon

19 What part of the bar is shaded?

A one quarter

B two thirds

C one third

D one half

20 Which statement is true?

A Every rectangle is a square.

B Every square is a rectangle.

C A triangle has 4 corners.

D A circle has 1 side.

21 How many triangles fit together to make a hexagon from its center?

A 6

B 3

C 4

D 8

22 Which solid has 6 faces that are all rectangles but not all squares?

A cube

B cylinder

C rectangular prism

D cone

23 How many sides do a triangle and a pentagon have all together?

A 7

B 8

C 9

D 6

24 A shape has more sides than a square but fewer than a hexagon. What is it?

A a triangle

B an octagon

C a rectangle

D a pentagon

ANSWER KEY & EXPLANATIONS

- 1 B** A triangle has 3 sides.
- 2 D** B is a square, with 4 sides.
- 3 A** A sphere is round all over, like a ball.
- 4 C** A hexagon has 6 sides and 6 corners.
- 5 D** A can has a round side and flat circle ends: a cylinder.
- 6 B** A circle is round with no corners.
- 7 A** A has all 4 sides the same length.
- 8 C** A cube has 6 square faces.
- 9 B** 4 equal parts, 1 shaded: one quarter.
- 10 D** It is a square, just turned. Turning a shape does not change its name.
- 11 C** A sphere is curved all over. The others have only flat faces.
- 12 A** It has 5 sides: a pentagon.
- 13 D** A, B, and C have straight sides and corners. D is a circle.
- 14 B** The cut from corner to corner makes 2 triangles.
- 15 A** A circle on top and a circle on the bottom: 2.
- 16 C** One fold line down the middle and one across: 2.
- 17 C** 4 equal sides is a square.
- 18 A** This pyramid sits on a square base, with triangles going up to the point.
- 19 D** 2 of 4 equal parts is two quarters, which is the same as one half.
- 20 B** A square has 4 sides and 4 square corners, so it fits the rectangle rule.
- 21 A** One triangle for each of the 6 sides.
- 22 C** A box (rectangular prism) has 6 rectangle faces. A cube's faces are all squares.
- 23 B** $3 + 5 = 8$.
- 24 D** A square has 4 and a hexagon has 6, so the shape has 5 sides: a pentagon.