



SCHOOL OF MATH
SOMATH

◆ CLASS 15 ◆

Shapes

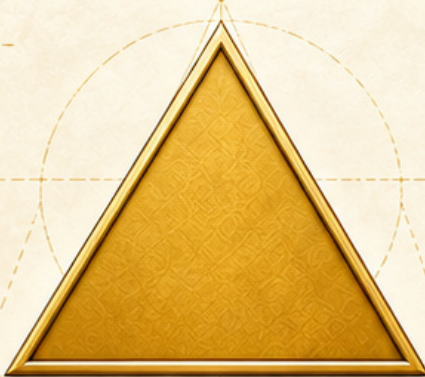
Squares, Rectangles, Triangles & Circles
Discover their attributes.



Square



Rectangle



Triangle



Circle

Recognize ◆ Compare ◆ Sort ◆ Build



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S O M A T H

CLASS 15 • ITEM 1

Recognizing Shapes

*Find squares, rectangles, triangles, and circles
in everyday objects.*

SQUARE



Tile

RECTANGLE



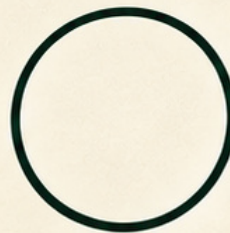
Door

TRIANGLE



Musical triangle

CIRCLE



Clock

Look around! *Which shapes can you find?*

Image 1 practice: Recognizing shapes in everyday objects

Q1. A round button has a smooth outline with no corners. Which shape does its outline resemble?

Q2. A bookmark has four square corners and two long sides opposite each other. Its other two sides are shorter. Name its shape.

Q3. A paper flag is a closed shape with three straight sides. What shape is it?

Q4. A sticker has four equal straight sides and four square corners. What is its most specific name?

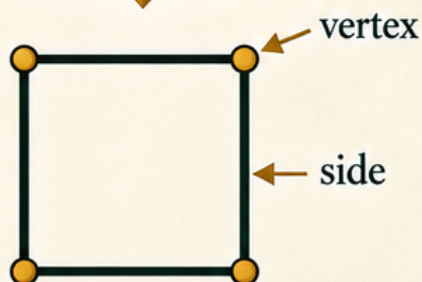
Q5. Find a flat object nearby. Draw its outline and name the shape it resembles.



Sides and Vertices

A side is a straight edge. A vertex is a corner.

SQUARE



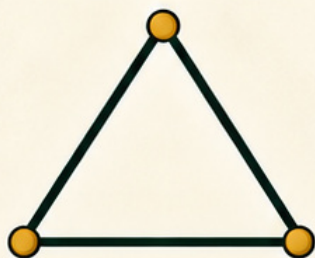
4 sides • 4 vertices

RECTANGLE



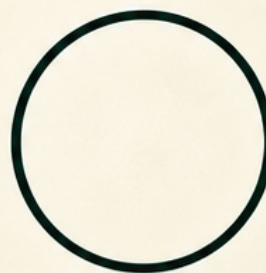
4 sides • 4 vertices

TRIANGLE



3 sides • 3 vertices

CIRCLE



0 straight sides • 0 vertices

Vertices is the plural of *vertex*.
A circle has a curved boundary and no corners.

Trace the sides. Count the vertices.

Image 2 practice: Sides and vertices

Q6. Draw a triangle. Put a dot on each vertex. How many dots do you need?

Q7. A rectangle has one side colored red. How many sides have not been colored?

Q8. How many vertices does a circle have? Explain.

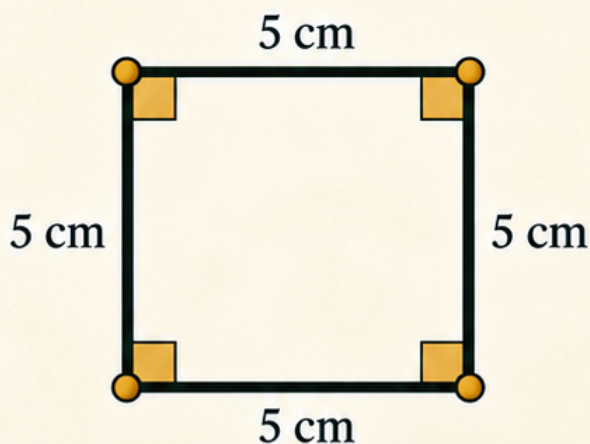
Q9. Lena draws two separate triangles. How many vertices do they have altogether?

Q10. A closed shape has four straight sides, but one corner is not a square corner. Can it be a rectangle?



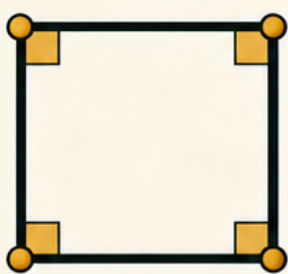
Squares

Four equal sides. Four square corners.

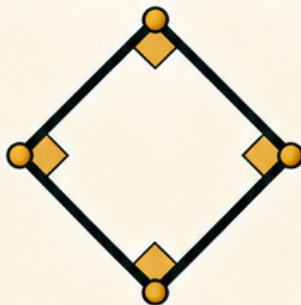


All four sides have the same length.
Each corner is a right angle (90°).

A square is still a square when you turn it.



Upright square



Turned square



A square tile

Find a square. Count its sides and corners.

Image 3 practice: Squares: equal sides and square corners

Q11. One side of a square is 3 centimeters long. How long is each of its other sides?

Q12. Draw a square. Then draw another square resting on one corner. Did turning it change its name?

Q13. A shape has four square corners. Its side lengths go 2, 5, 2, 5 centimeters around the edge. Is it a square?

Q14. A closed shape has four equal sides but no square corners. Is it a square?

Q15. Three separate square cards lie on a table. How many corners do the cards have altogether?



Rectangles

Four square corners. Opposite sides are equal.

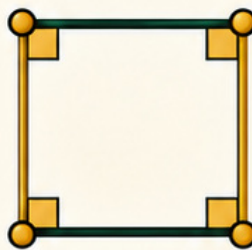


Opposite sides have the same length.
Each corner is a right angle (90°).

A square is a special rectangle.



Rectangle



Square: all four
sides are equal



A rectangular door

Find a rectangle. Match its opposite sides.

Image 4 practice: Rectangles and the square connection

Q16. A rectangle has a top side 7 centimeters long and a left side 3 centimeters long. How long are the bottom and right sides?

Q17. A tall rectangle is turned so it lies sideways. Is it still a rectangle?

Q18. Can a square go in a group labeled “all rectangles”? Explain.

Q19. A tray has 2 squares and 3 rectangles that are not squares. How many rectangles are there in all?

Q20. A shape has four square corners, two sides 6 centimeters long, and two sides 2 centimeters long. Is it a square, a rectangle that is not a square, or neither?

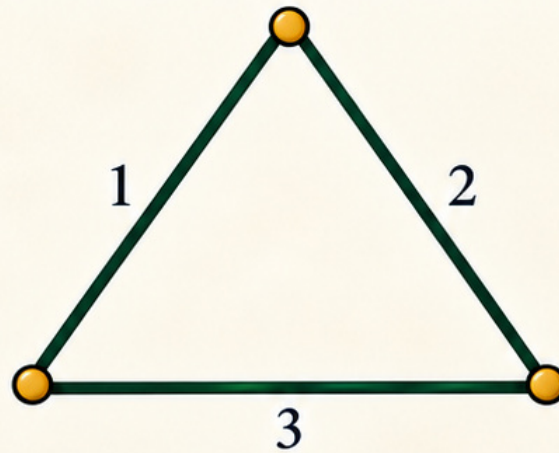


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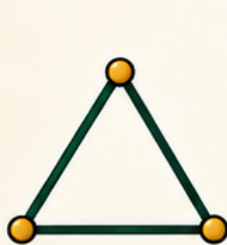
Triangles

Three straight sides. Three vertices.

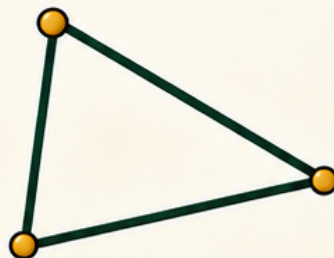


Every triangle has 3 sides and 3 vertices.

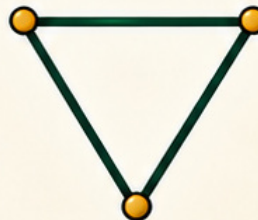
Different looks. The same shape family.



Small



Turned



Upside down



A musical triangle

Size and direction do not change a triangle.

Trace three sides. Touch three corners.

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Image 5 practice: Triangles in different positions

Q21. Draw a narrow triangle and a wide triangle. How many sides does each have?

Q22. A triangle points to the left instead of upward. Is it still a triangle?

Q23. Three sticks almost make a triangle, but there is a gap at one corner. Is the outline a closed triangle yet?

Q24. Do all three sides of every triangle have to be equal?

Q25. A square and a triangle are drawn separately. Which has more vertices, and how many more?

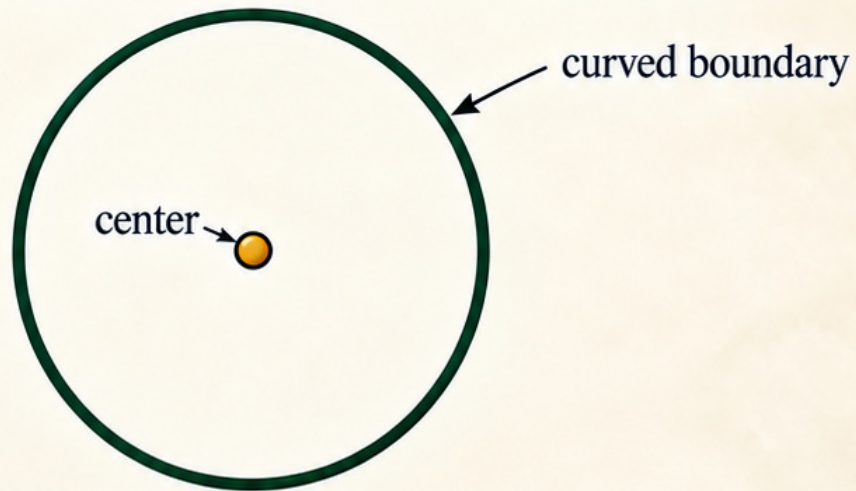


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Circles

A round shape with a curved boundary.



0 straight sides • 0 vertices

Every point on the boundary is the same distance from the center.

Circles in everyday life



Clock



Plate



Coin



Big or small, a circle stays round.

Trace the curve. Find the center.

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Image 6 practice: Circles and curved boundaries

Q26. Draw a circle and mark a dot near its center. Does the boundary have any corners?

Q27. A smooth outline is stretched like an egg. Must it be a circle because it has no corners?

Q28. Which has straight sides: a circle or a triangle?

Q29. A drawing shows a large circle and a small circle. How many vertices do they have altogether?

Q30. A round lid is turned halfway around on a table. Does its circular outline become a different shape?



Comparing & Sorting Shapes

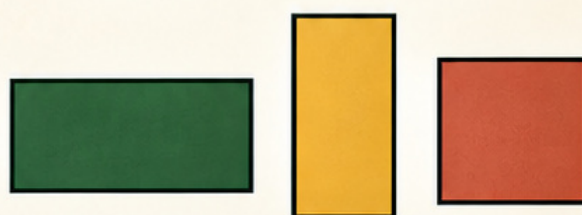
Sort by attributes: sides, vertices, and curves.

TRIANGLES



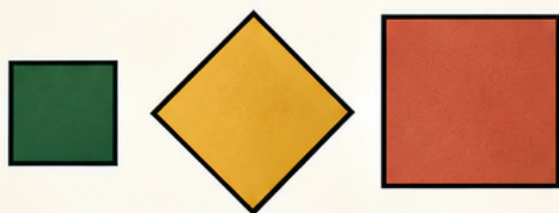
3 straight sides • 3 vertices

RECTANGLES



4 straight sides • 4 square corners
Squares belong here too.

SQUARES



4 equal sides • 4 square corners

CIRCLES



Curved boundary • No vertices

Shape stays the same when size, color, or direction changes.

Try another way to sort:

Straight sides: squares, rectangles, triangles.

Curved boundary: circles.

Image 7 practice: Comparing and sorting shapes

Q31. You have a blue triangle, a red triangle, and a blue circle. Which two belong together under the rule “three straight sides”?

Q32. Sort a square, a circle, and a triangle into “has vertices” and “has no vertices.”

Q33. You have 3 squares, 2 rectangles that are not squares, and 1 circle. How many have four square corners?

Q34. A square fits both “four equal sides” and “four square corners.” Is that a sorting mistake?

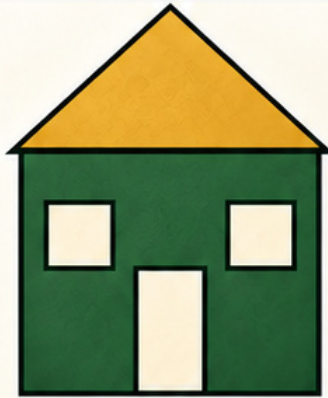
Q35. Choose the better rule for naming triangles: “is green” or “is closed with three straight sides.” Explain.



Building & Combining Shapes

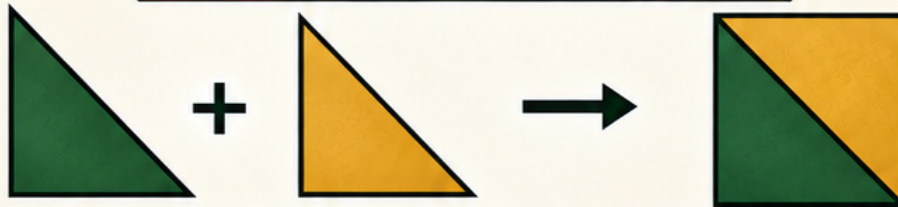
Draw shapes. Put them together. Create something new.

Build a house



Square body + triangle roof + rectangle door.

Make a new shape



Two matching right triangles can make a square.

Create a pattern



Repeat the same order.

Your turn: draw a picture using all four shapes.

Image 8 practice: Building and combining shapes

Q36. A paper rocket uses 1 rectangle, 2 triangles, and 1 circle. How many pieces does it use?

Q37. A square is cut along a diagonal into two pieces. What shape is each piece?

Q38. You put those two pieces back exactly as they were before the cut. What outside shape do they make?

Q39. Two equal square tiles touch along a full side, with no overlap. What is the outside shape of the pair?

Q40. Continue this repeating pattern with the next three shapes: triangle, circle, circle, triangle, circle, circle.

Homework review: R1–R5

R1. A flat gift tag is closed and has three straight sides. Name the shape and one clue you used.

R2. Draw a rectangle and label one side and one vertex. How many of each does it have?

R3. A square has sides 4 centimeters long and is turned onto one corner. What is its shape now, and how long is each side?

R4. A collection has 4 squares and 2 rectangles that are not squares. How many shapes belong to the group “all rectangles”?

R5. A closed triangle is wide and points downward. How many sides and vertices does it have?

Homework review: R6–R8

R6. A circle and a stretched oval both have no corners. Are they both circles? Explain.

R7. Sort these into “four square corners” and “not four square corners”: square, triangle, circle, rectangle that is not a square.

R8. Two identical square tiles meet along a full side. Draw their outside outline and name it.

Homework word problems: W1–W5

W1. Nora puts a round coaster on her desk. Its outline is equally round in every direction from its center. What shape does the outline resemble?

W2. Leo makes a closed paper sail with three straight edges. What shape is his sail, and how many corners does it have?

W3. Mia turns a square napkin so one corner points toward her. Her friend calls it a new shape. Is her friend correct?

W4. A rectangular photo has a top edge 9 centimeters long and a left edge 6 centimeters long. What are the lengths of its bottom and right edges?

W5. Sam places 3 separate triangular signs on a table. How many corners do the signs have altogether?

Homework word problems: W6–W10

W6. A craft box holds 2 squares, 3 triangles, and 4 circles. How many pieces have at least one vertex?

W7. A teacher puts 4 squares and 3 rectangles that are not squares in one tray. How many pieces should go into a group labeled “all rectangles”?

W8. A robot picture uses 1 square head, 1 rectangular body, 2 rectangular arms, and 2 circular eyes. How many pieces are used? How many of them are rectangles, including squares?

W9. A banner repeats square, triangle, circle. Ava adds two complete repeats. How many shapes does she add, and how many are triangles?

W10. Ben has 3 square sheets. He cuts each sheet once along a diagonal. How many triangular pieces does he get? How many whole squares can he rebuild using all the pieces?

Homework word problems: W11–W12

W11. A mosaic uses 2 separate square pieces and 2 separate triangle pieces. Before gluing them down, Ella counts all their corners. How many corners does she count?

W12. A bag holds 8 shape cards. Three are circles and two are triangles. All the remaining cards are squares. How many squares are there? How many vertices do those square cards have altogether?