

SMILE WORKCARDS

Shape Pack Two

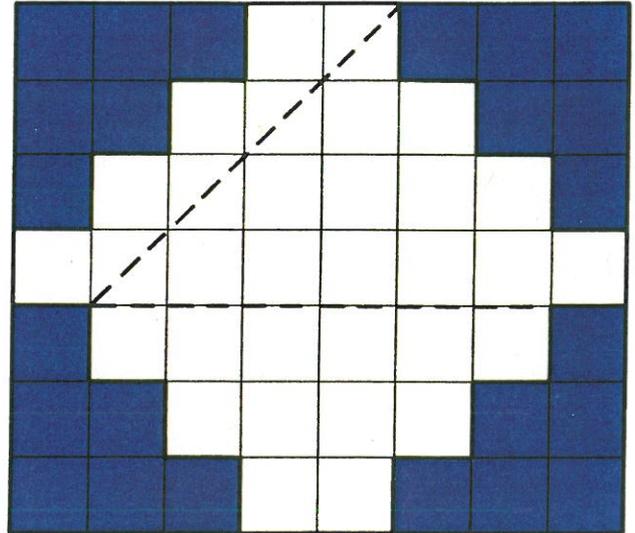
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Dissection 5

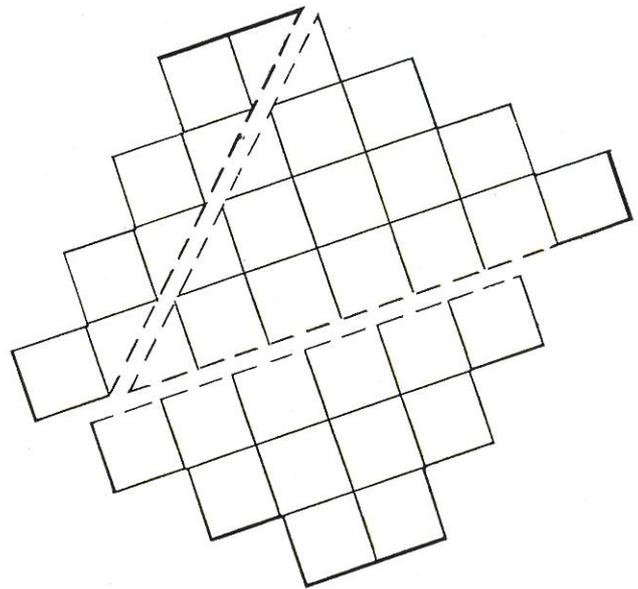
Copy this diagram.

Cut off the blue pieces carefully.
(You will need them for question 2)



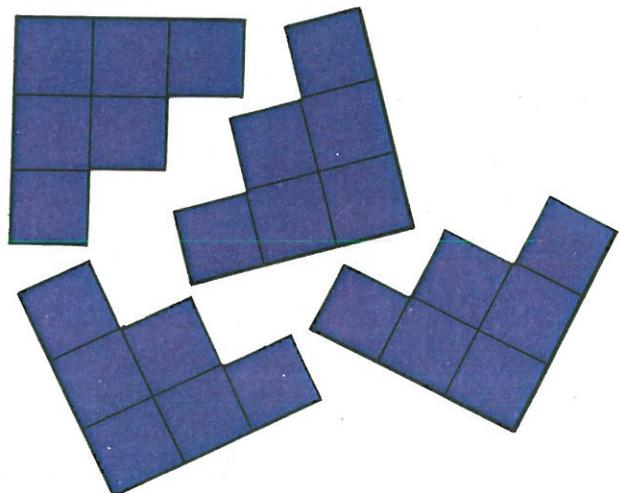
- 1) **With the yellow pieces:**
Cut along the dotted lines.
Use the 3 pieces to make a triangle.
You will have to turn one piece over.

Stick the triangle in your book.

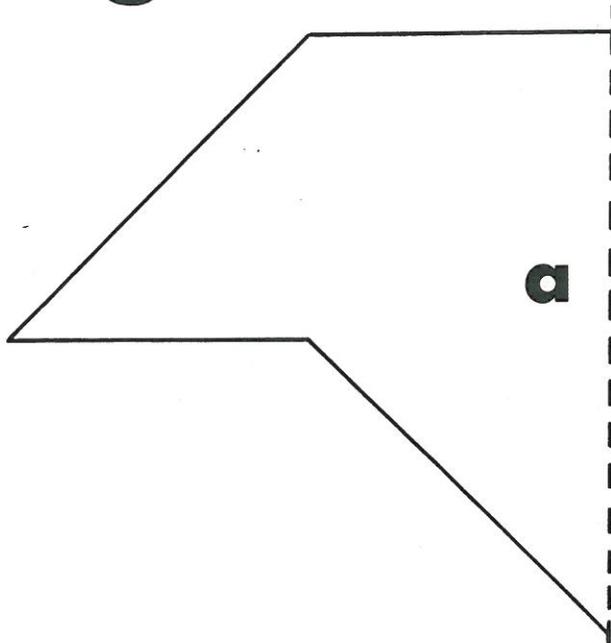


2. **With the blue pieces:**
Fit them together to make a shape
with 4 lines of symmetry.

*Stick the shape in your book and
draw on it the lines of symmetry.*

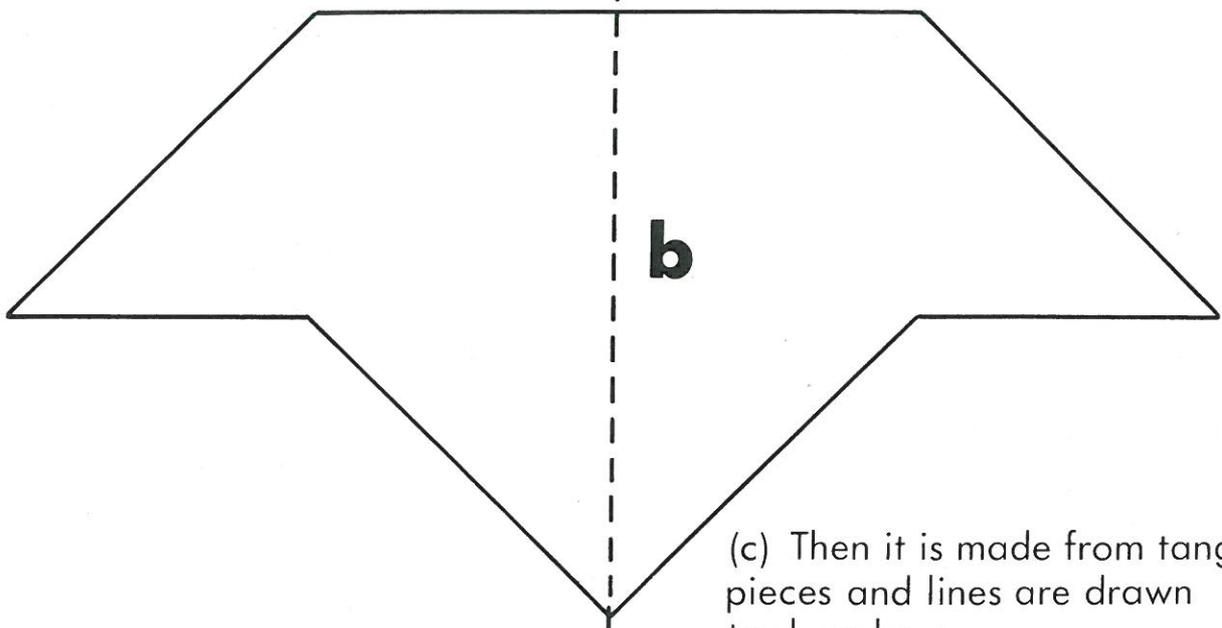


Tangram 3

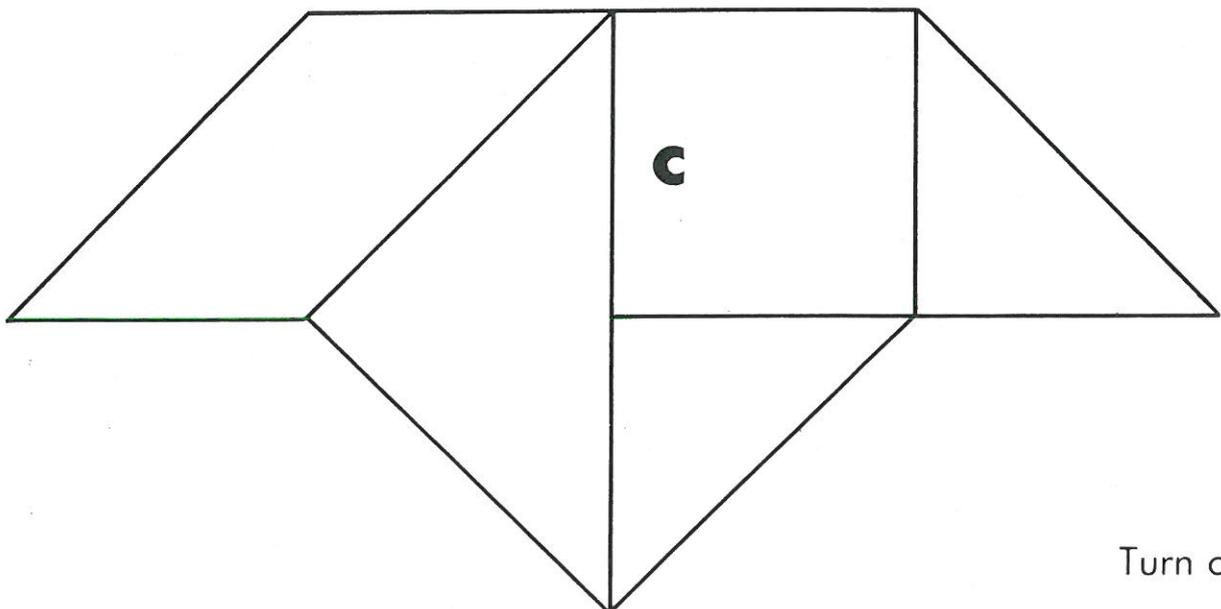


Look at this example.
It shows you how to do the work.

(a) First the shape is traced.



(b) Next the reflection is added.



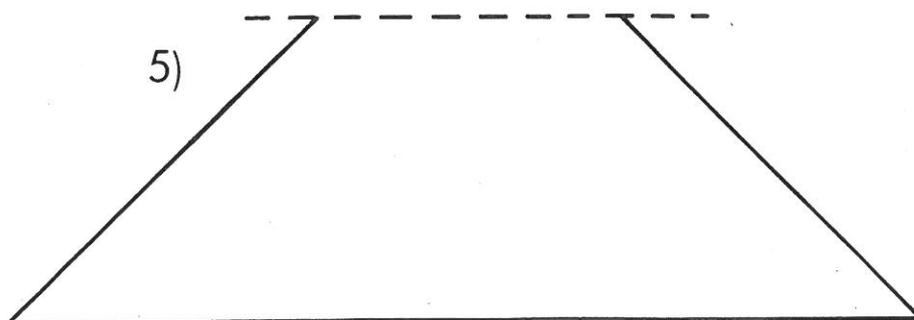
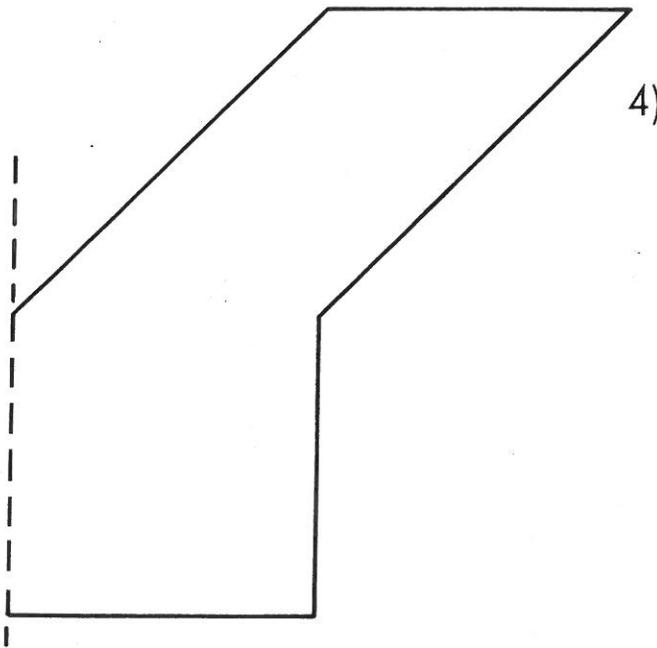
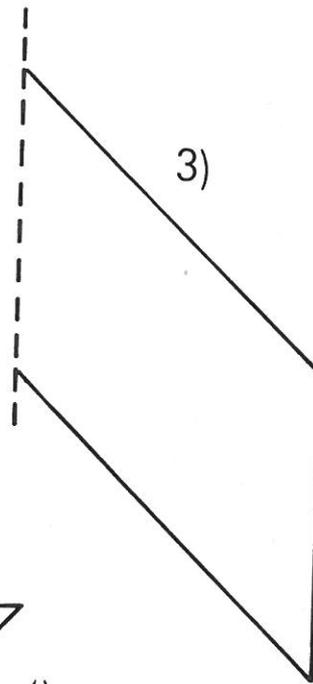
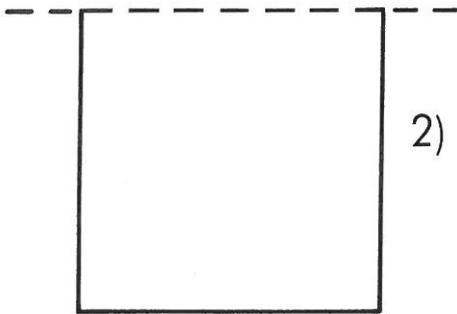
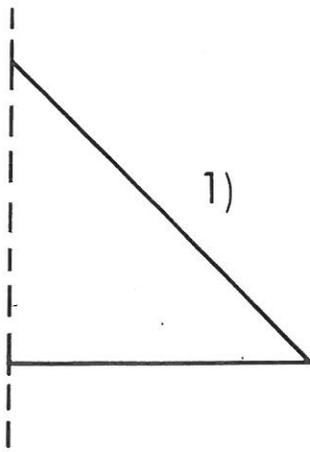
(c) Then it is made from tangram pieces and lines are drawn to show how.

For each question:

(a) trace the shape

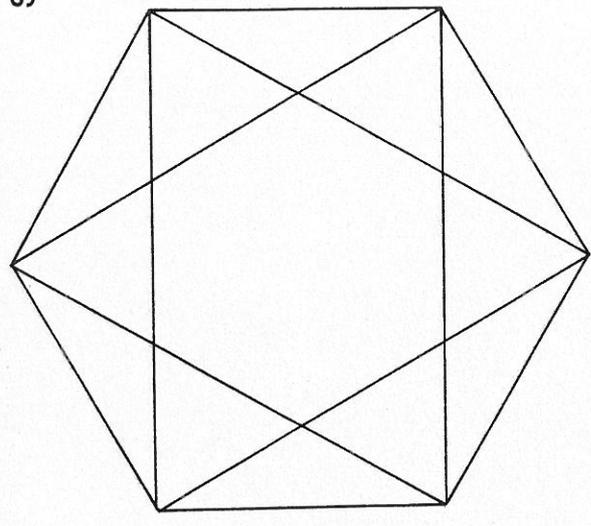
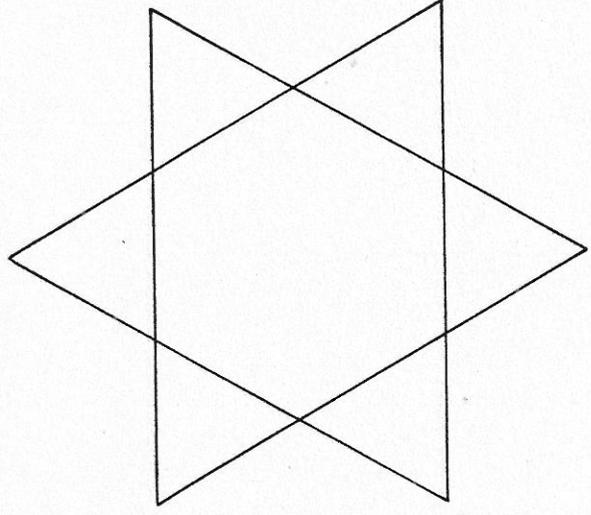
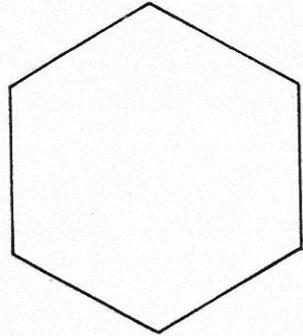
(b) draw the reflection about the mirror line

(c) fit the tangram pieces — draw lines to show how.



You will need isometric paper or isometric dotty paper

Hexagon Dissection

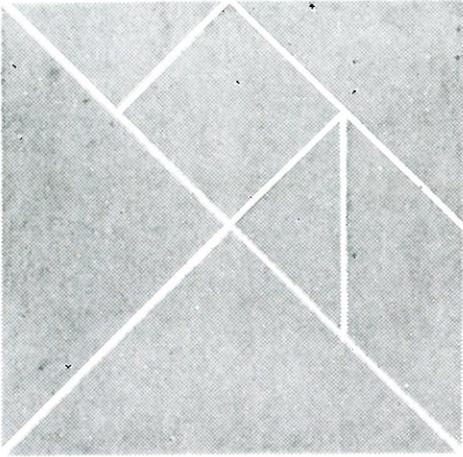


1) Draw a regular hexagon.

2) Extend the sides to make a hexagram.
3) Join the points of the hexagram.
What shape do you get?

4) Cut out the 13 pieces and use them to make 3 separate hexagons.
Stick them in your book.

7-piece Tangram



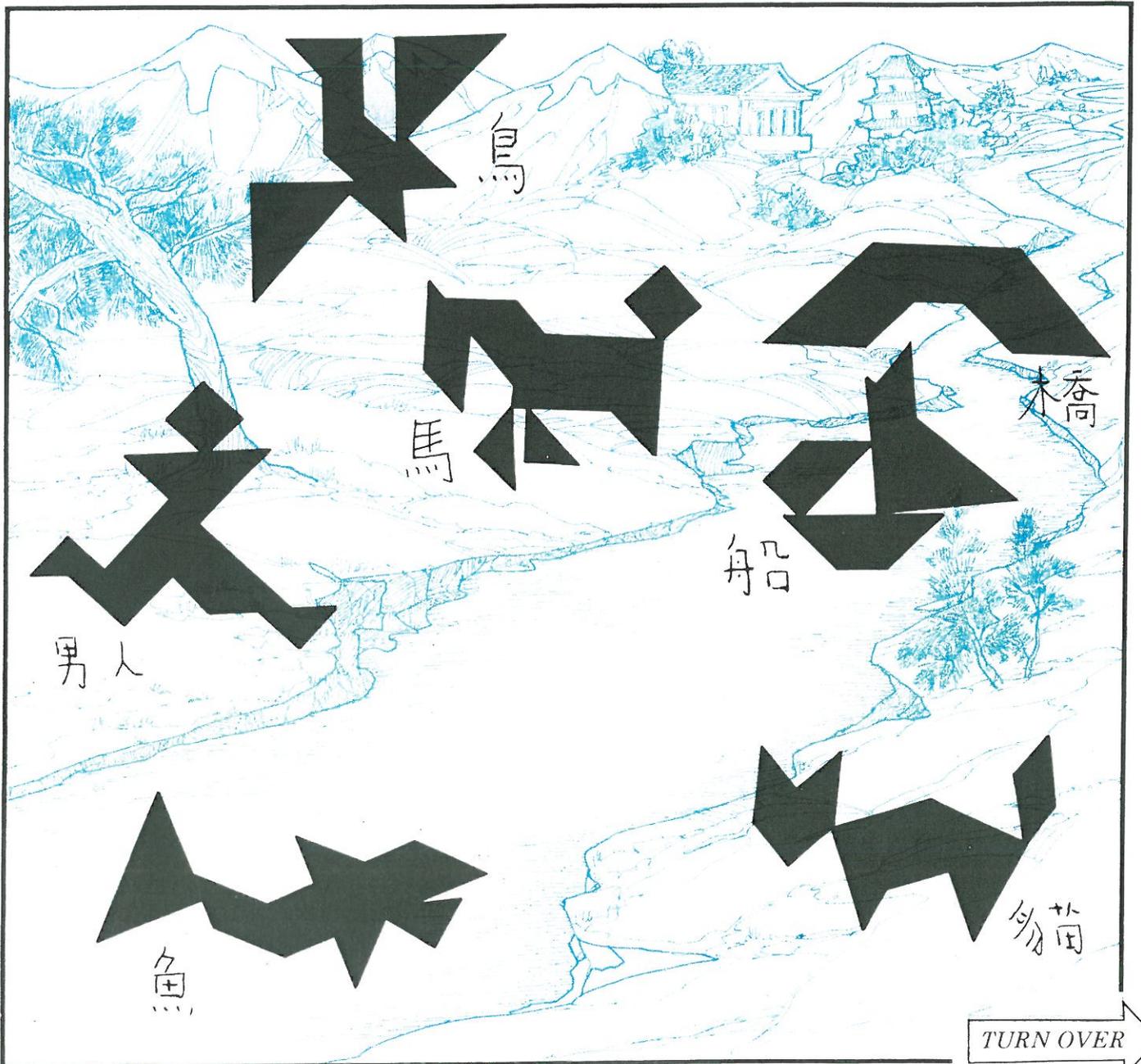
The Tangram puzzle was invented long ago in China.

The puzzle is to make the black shapes below using all 7 pieces from the Tangram square on the left.

Start by making your own Tangram square.

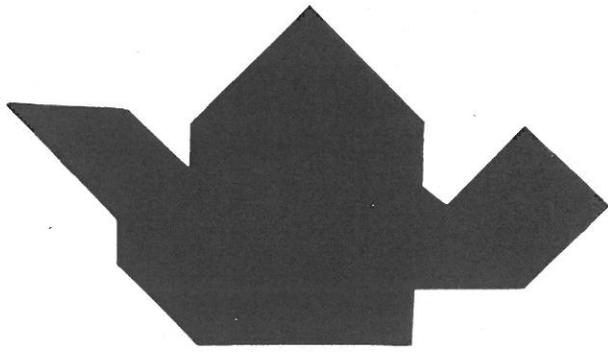
What other shapes can you make using all 7 pieces?

There are some more Tangram puzzles on the back of this card.

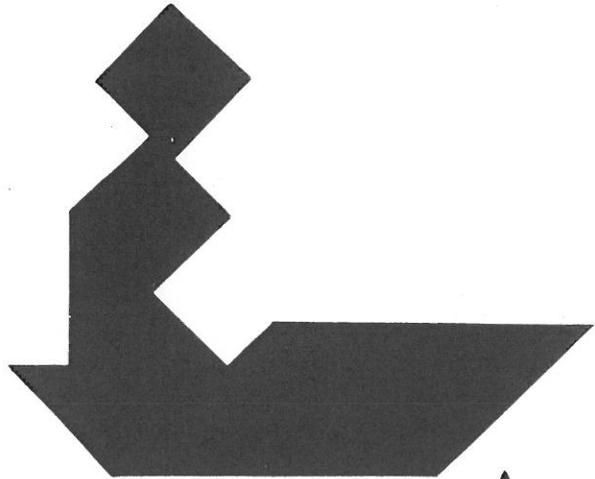


TURN OVER

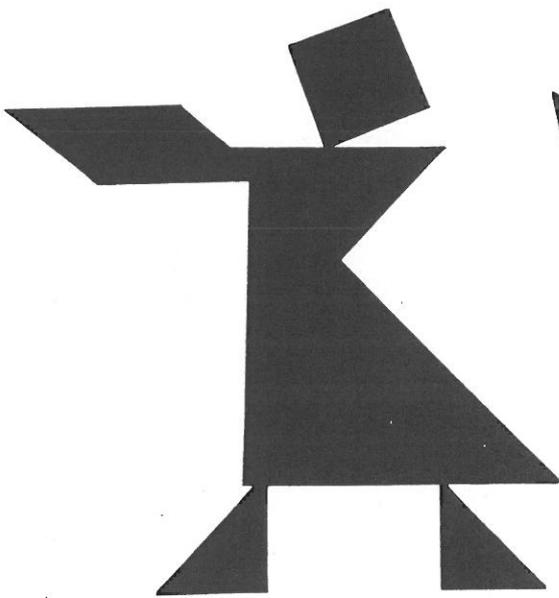
More Tangrams



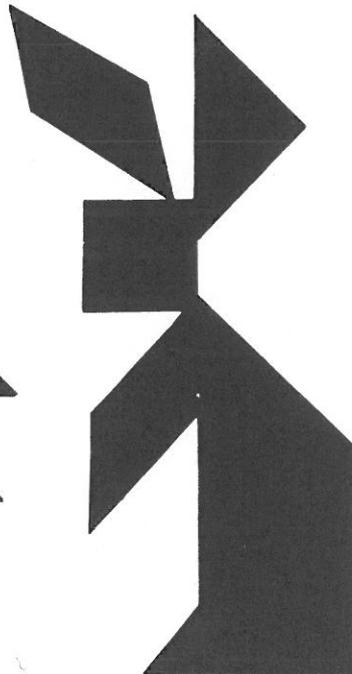
teapot



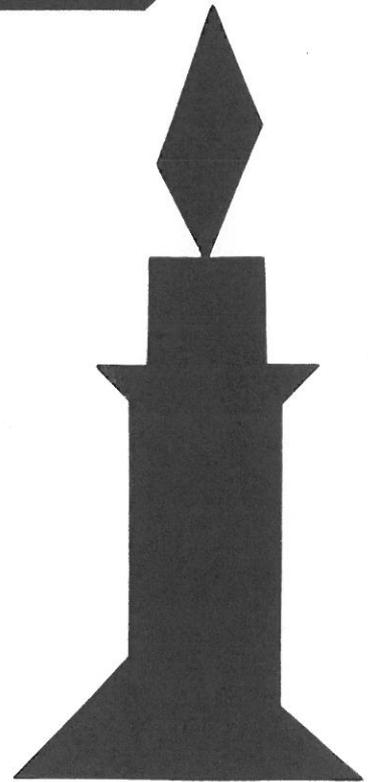
boatman



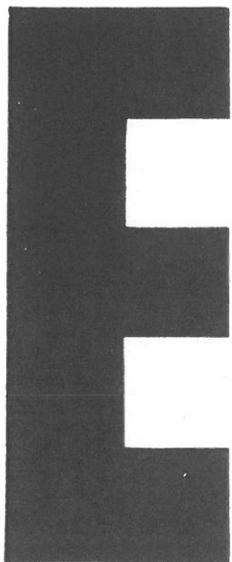
woman



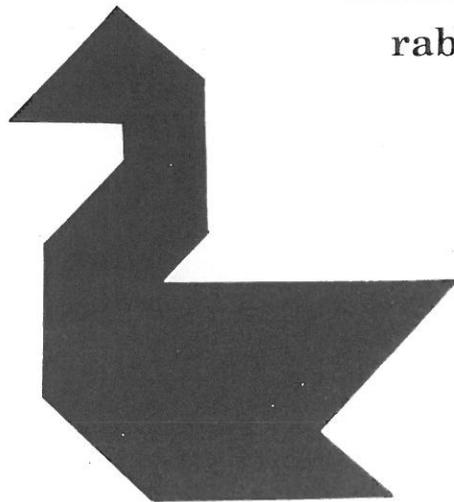
rabbit



candle



letters



swan



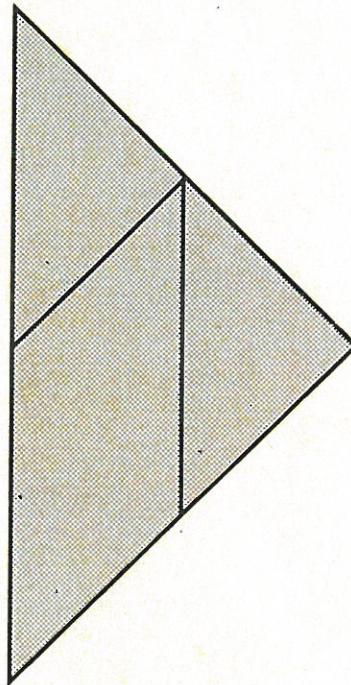
numbers

Tangram Teasers

You will need a 7 piece tangram.

Here is one way to make a **triangle** with **3** tangram pieces.

Make other triangles using different combinations of **3** pieces.



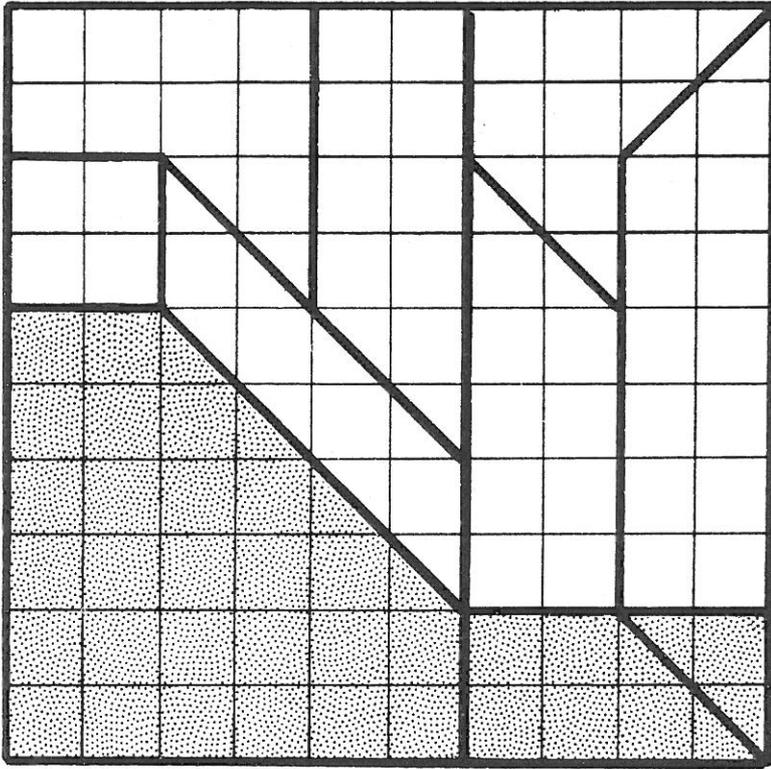
Can you make a triangle with

- 4 pieces
- 5 pieces
- 6 pieces
- 7 pieces?

How many different ways can you make a **square** using the tangram pieces?

You will need: cm. squared paper, scissors, coloured pencil, glue.

SQUARES TANGRAM



- (1) Draw this pattern carefully on cm squared paper.
- (2) Colour the 3 shaded pieces.
- (3) Cut out the 10 pieces.

(4)

This is a 6cm by 6cm square.

Fit the 3 coloured pieces together to cover this square.

Stick the square in your book.

(5)

This is an 8cm by 8cm square.

Fit the other 7 pieces together to cover this square. (You may turn pieces over).

Stick the square in your book.

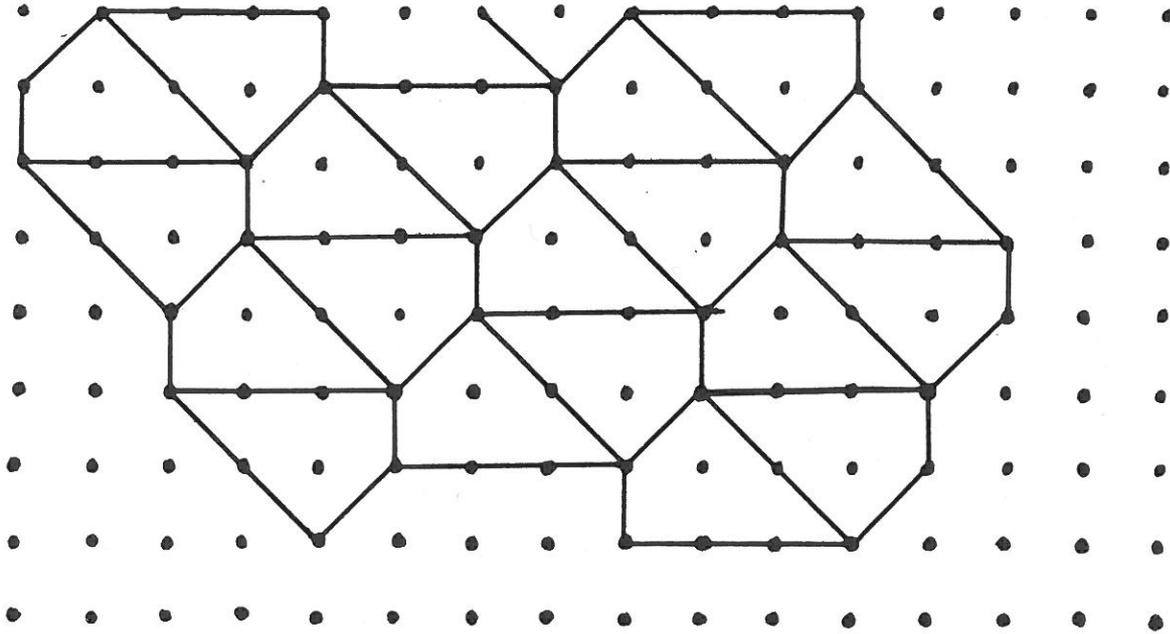
- (6) What was the area of the square you started with?
- (7) What are the areas of the other 2 squares?
- (8) Copy and complete:

$$10^2 = \blacksquare^2 + \blacksquare^2$$

$$100 = \blacksquare + \blacksquare$$

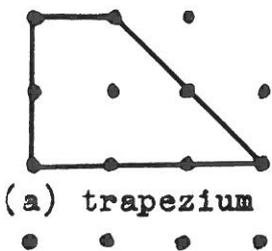
You will need: pinboard, rubber bands, dotted paper

Tessellations of quadrilaterals

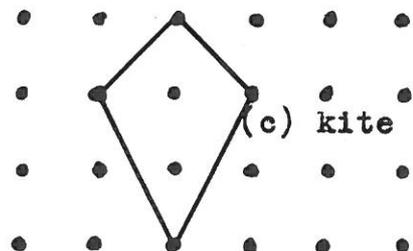
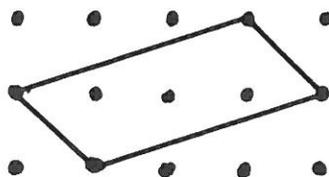


Here dotted paper has been used to make up a tessellation of quadrilaterals.

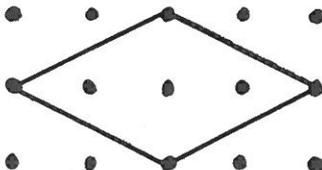
Make up tessellations from these quadrilaterals.
Use a pinboard to help you and then draw the patterns on dotted paper.



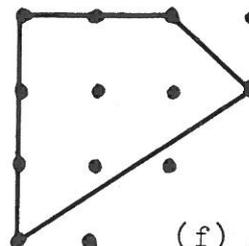
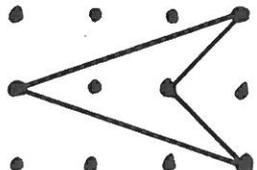
(b) parallelogram



(d) rhombus

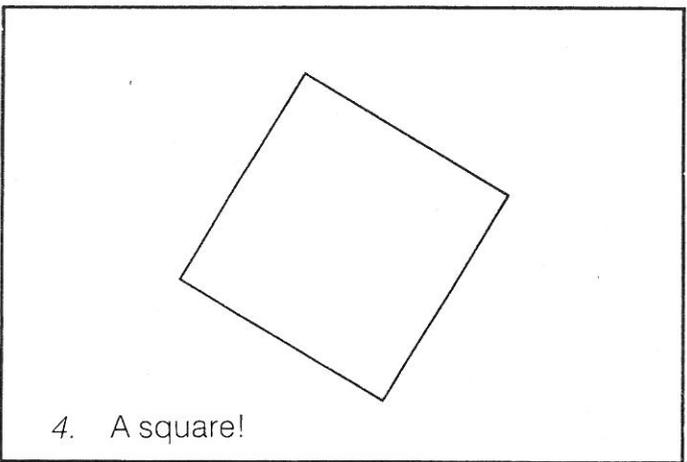
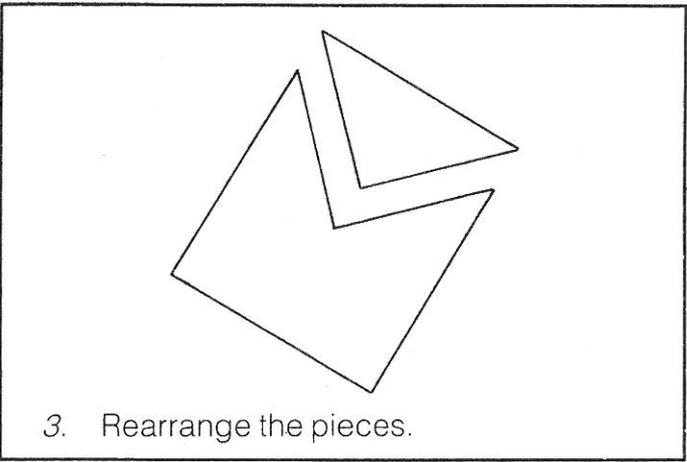
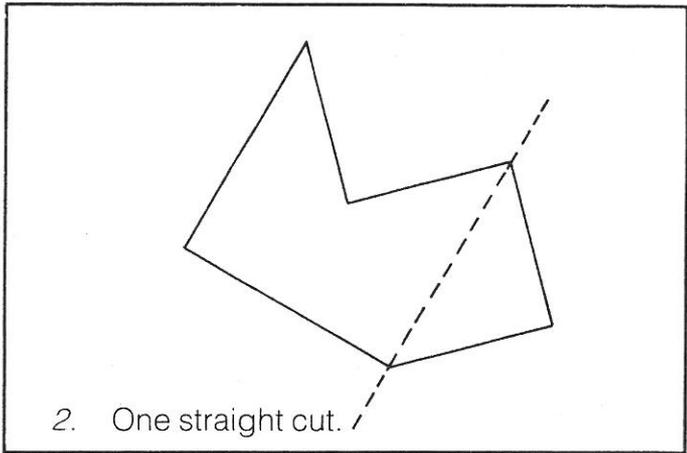
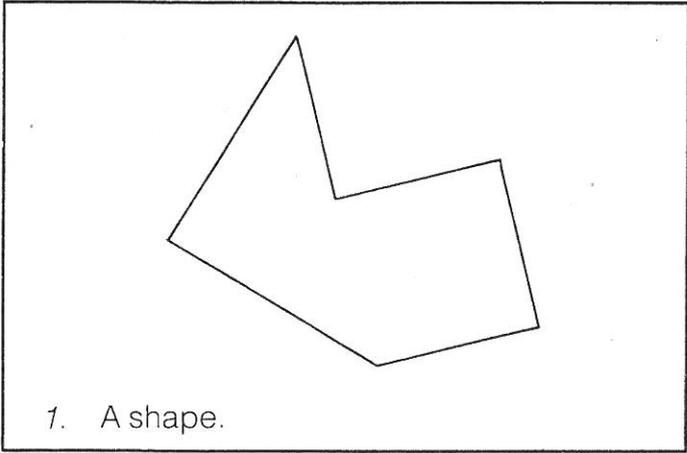


(e) arrowhead



(f) scalene quadrilateral

One straight cut

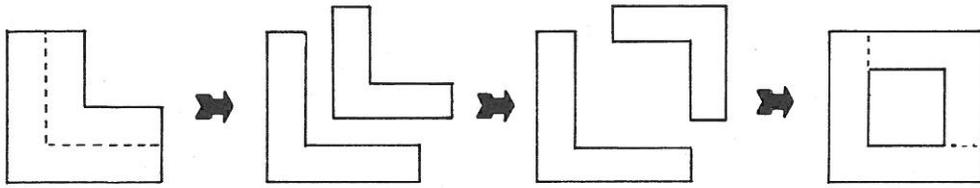


Show how each of the shapes below can be cut to make a square.
Remember: one straight cut only!

The grid contains the following shapes:

- A:** A 3x2 rectangle with a 1x1 square cut out from the bottom center.
- B:** A right-angled triangle with a vertical leg of 4 units and a horizontal leg of 3 units.
- C:** A 3x3 square with a 1x1 square cut out from the top center.
- D:** A parallelogram with a base of 4 units and a height of 3 units.
- E:** A right-angled triangle with a vertical leg of 4 units and a horizontal leg of 2 units.
- F:** A pentagon with a horizontal top side of 3 units, a vertical right side of 2 units, a horizontal bottom side of 4 units, and two slanted sides.
- G:** A shape with a horizontal top side of 4 units, a horizontal bottom side of 4 units, and two curved sides.
- H:** A shape with a vertical right side of 4 units, a horizontal top side of 2 units, and a curved left side.

DISSECTION PAIRS

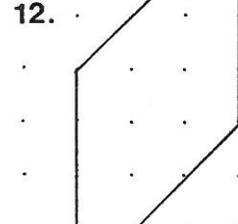
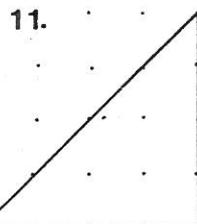
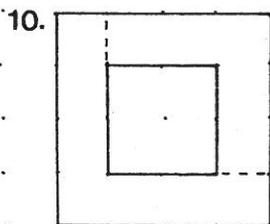
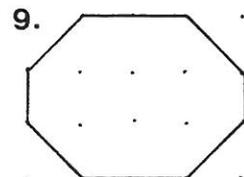
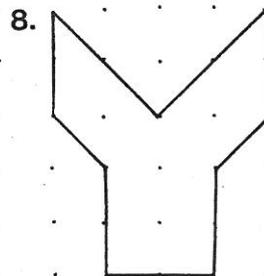
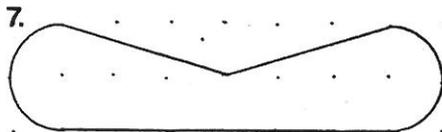
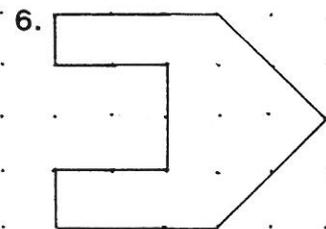
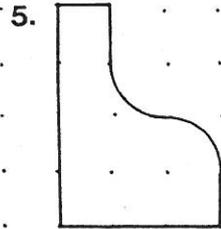
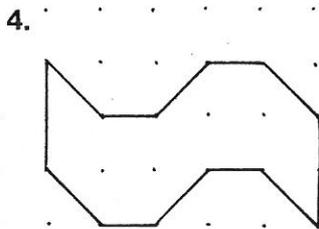
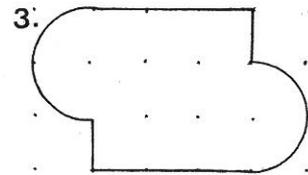
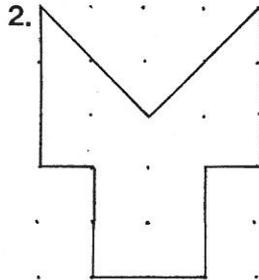
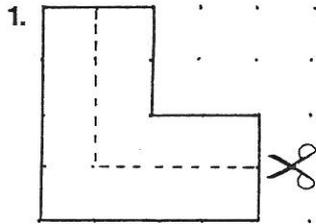


Shape 1 ...

can be cut and rearranged to give ...

Shape 10.

Find 5 other pairs of shapes.



Check your answers by comparing areas.

WEAVING

Two of these patterns represent the same weaving pattern viewed from two different sides. Which two?

