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Pocket Puzzles

SOLUTION Hints! BOOKLET

RUBIK'S™ DOUBLE TANGRAM

"Rubik's OWN Classic Picture-Making Puzzle!"

OddzOn

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Pocket Puzzles

RUBIK'S™ DOUBLE TANGRAM

"Rubik's OWN Classic Picture-Making Puzzle!"

Solution Hints Booklet

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The Picture-Making Puzzle

The classic 7-piece tangram puzzle came from China. Books of tangram picture puzzles were first published at least 200 years ago and they refer to the puzzle as of unknown ancient origin.

The puzzle became fashionable throughout Europe and America in the 19th century and is still a part of our culture today.

The fascination with tangrams stems from the great number and variety of amusing pictures that can be produced by the clever juxtaposition of the 7 simple geometric shapes. This basic puzzle, however, is easily mastered, and can quickly lose its challenge.

By duplicating each shape—offering 14 pieces instead of 7—and by making each shape double-sided, Rubik presents a whole new dimension to tangrams and creates a new level of exciting challenges.

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Meet RUBIK'S Double Tangram

Rubik's Double Tangram consists of 14 pieces; 4 large triangles, 2 medium triangles, 4 small triangles, 2 squares, and 2 rhomboids.

Each playing piece is double sided: ivory on one side and black on the other. All the pieces of the same size and shape are identical except the two rhomboids which are mirror images of each other.

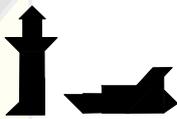
With these 14 pieces, you can create thousands of figures and pictures. On the following pages, you will find some challenging examples. Solutions for each picture are provided on the other side of this booklet.

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Stage One

Begin by dividing your Rubik's Double Tangram into two sets of basic tangrams. Each set should include 2 large triangles,

1 medium triangle, 2 small triangles, 1 square and 1 rhomboid. Now try these simple pictures. In every pair, one figure can be entirely ivory and the other entirely black and each figure can be made by using one basic set.



Lighthouse & Liner



Boy & Girl



Table & Chair



Tea for Two

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Fox & Hound

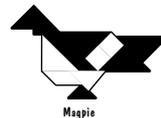


Horse & Cart

Stage Two

Now that you are familiar with the basic shapes, try these intermediate two-tone pictures. Each uses all 14 Double Tangram pieces. Note: The white in each picture means ivory side up.

Pictorial Challenges

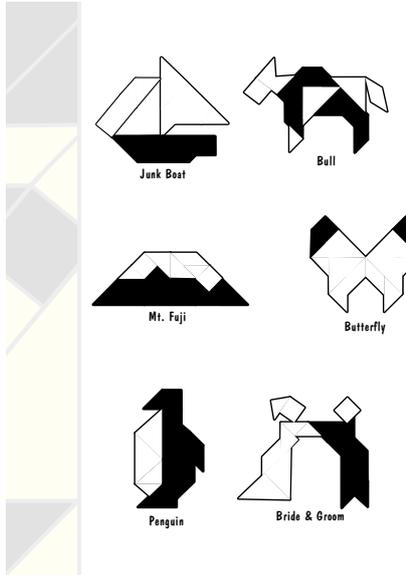


Maggie

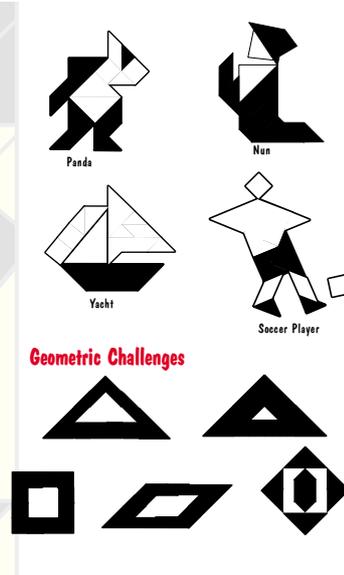


Dancer

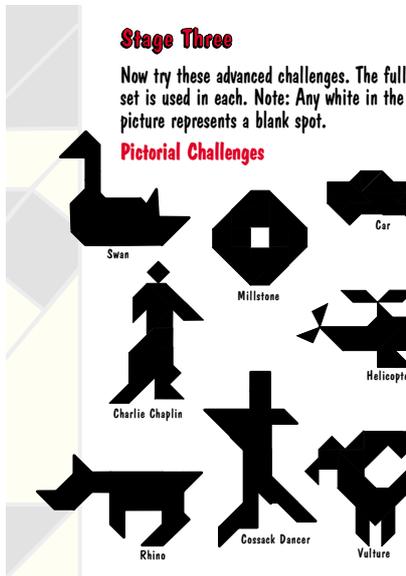
5



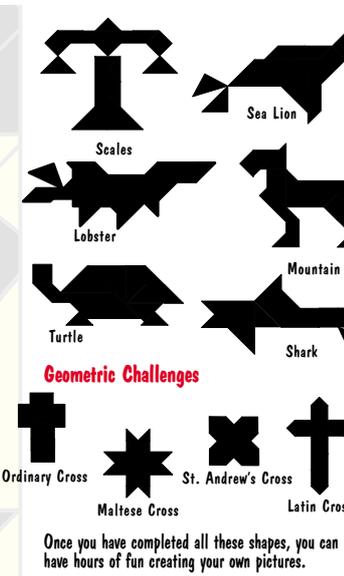
6



7



8



9

Expert Challenges

Here are two final mind-bending challenges.

Shaping Up

There are 33 different convex polygons (a solid shape that has no internal angle greater than 180) that can be made using Rubik's Double Tangram. It may have as few as 3 or as many as 8 sides.

Here is one example:



Can you find and make the other 32? If you have any trouble, each polygon shape is shown in the Advanced Challenge Solution section.

Doing Things by Halves

This challenge is to make two identical solid shapes, one in ivory and one in black, that fit together to form a square.

For example:



There are 40 different ways of doing this (not counting rotations and reflections). Can you find them all? If you have any trouble finding them, they are illustrated in the Advanced Challenge Solution section.

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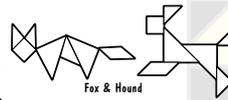
Solutions

There are several ways of making most shapes.

Stage One



Lighthouse & Liner



Fox & Hound

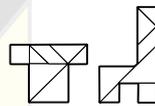
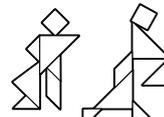
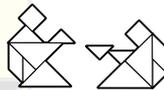


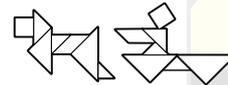
Table & Chair



Boy & Girl



Tea for Two



Horse & Cart

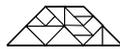
11

Stage Two

Pictorial Challenges



Bride & Groom



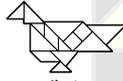
Mr. Fuji



Dancer



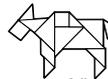
Yacht



Magpie



Junk Boat



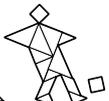
Bull



Butterfly



Nun



Soccer Player



Penguin



Panda

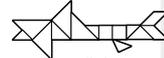
Geometric Challenges



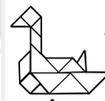
12

Stage Three

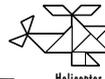
Pictorial Challenges



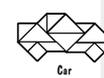
Shark



Swan



Helicopter



Car



Charlie Chaplin



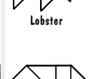
Rhino



Cossack Dancer



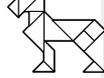
Sea Lion



Lobster



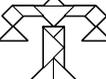
Millstone



Mountain Lion



Turtle



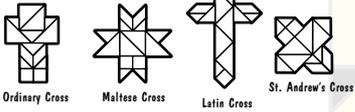
Scales



Vulture

13

Geometric Challenges

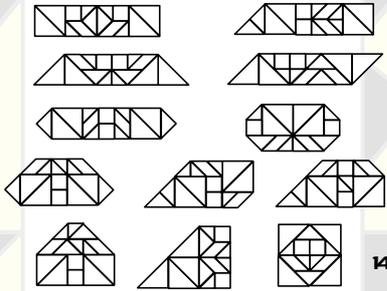


Ordinary Cross Maltese Cross Latin Cross St. Andrew's Cross

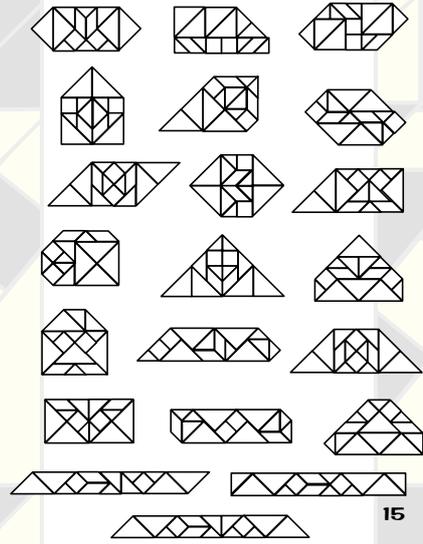
Advanced Challenge Solutions

Shaping Up

The 33 different convex polygons are:



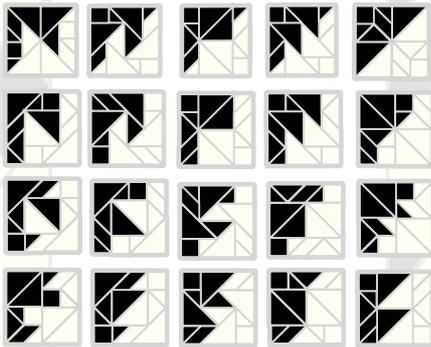
14



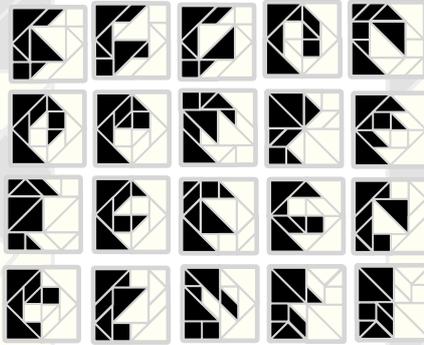
15

Doing Things by Halves

The 40 different ways of making the halved square are:



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One of these patterns is unique.
Can you find which one and why?

Answer: The unique pattern is third from last. It is the only one in which the half shape (black or ivory) cannot be made from the basic set of tangrams.

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