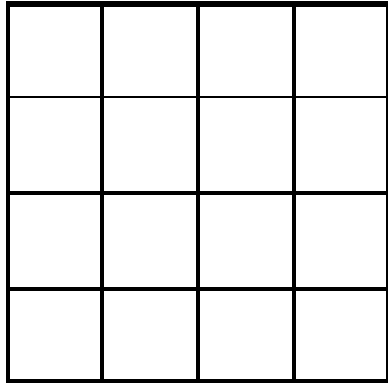
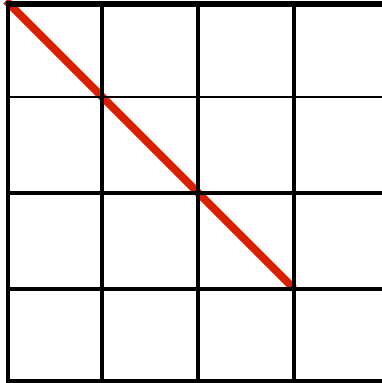


# How to Make a Tangram

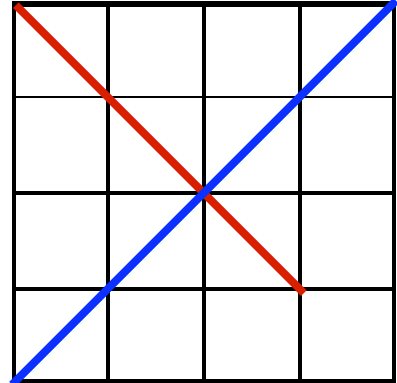
## Using a Grid



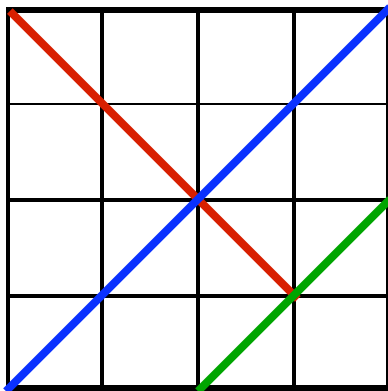
**1.** Make a grid that has four squares in four rows, like the one above. (One inch grid paper may be used.)



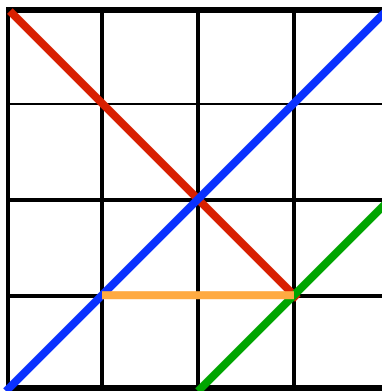
**2.** Draw a red line from the upper left-hand corner across to the third row, third cell as shown.



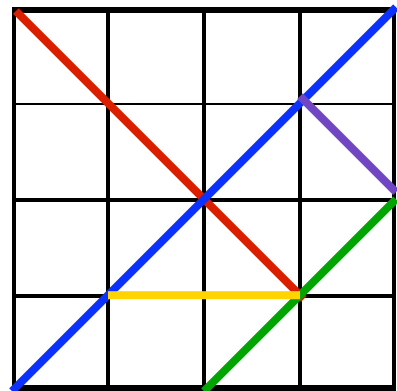
**3.** Next draw a blue diagonal from the upper right-hand corner to the lower left-hand corner.



**4.** Draw a green line connecting the last box in the third row with the corner of the third box in the fourth row.



**5.** Connect the blue line with the green line by drawing an orange line straight across the top of the third row.



**6.** Finally make a purple line connecting the blue line with the green line in the second row.

**7.** Cut out the pieces and enjoy your puzzle.

Websites used for reference:

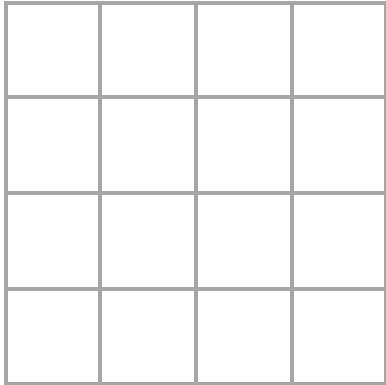
<http://www.enchantedlearning.com/crafts/chinesenewyear/tangram/>

<http://tangrams.ca/>

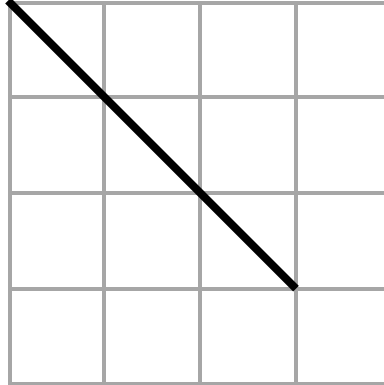
<http://www.cimt.plymouth.ac.uk/resources/puzzles/tangrams/tangint.htm>

# How to Make a Tangram

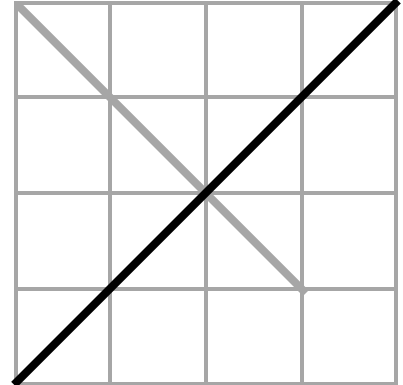
## Using a Grid



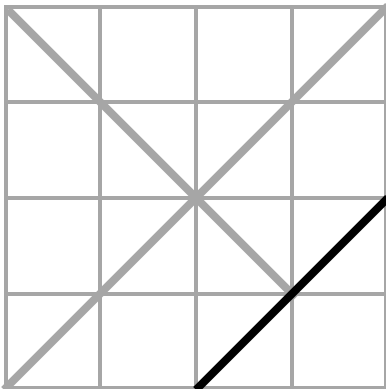
**#1.**  
Make a grid that has four squares in four rows, like the one above. (One inch grid paper may be used .)



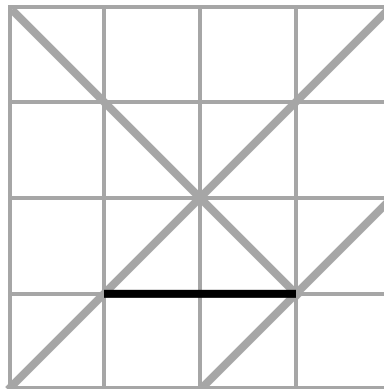
**#2.**  
Draw a line from the upper left-hand corner across to the third row, third cell as shown.



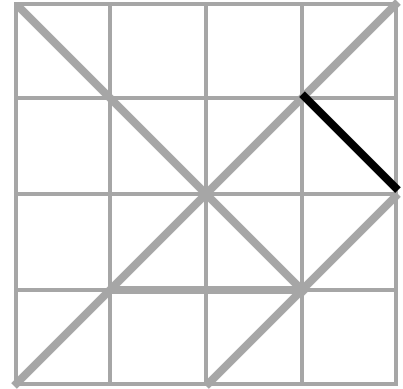
**#3.**  
Next draw a diagonal line from the upper right-hand corner to the lower left-hand corner.



**#4.**  
Now draw a line connecting the last box in the third row with the corner of the third box in the fourth row.



**#5.**  
Connect the diagonal line to line #4 by drawing a line straight across the top of the third row.



**#6.**  
Finally make a line connecting the diagonal line with line #4 in the second row.

**#7.** Cut out the pieces and enjoy your puzzle.

Websites used for reference:

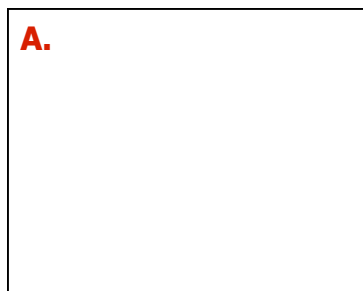
<http://www.enchantedlearning.com/crafts/chinesenewyear/tangram/>

<http://tangrams.ca/>

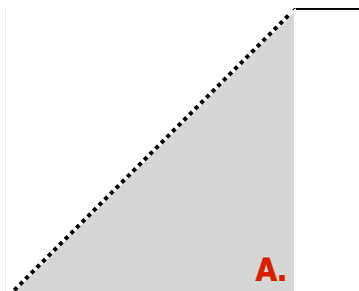
<http://www.cimt.plymouth.ac.uk/resources/puzzles/tangrams/tangint.htm>

# How to Make a Tangram

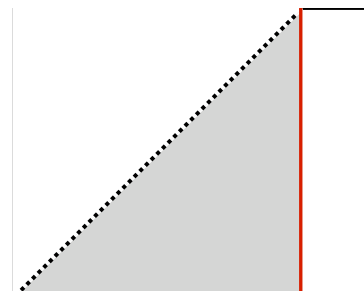
## By Folding



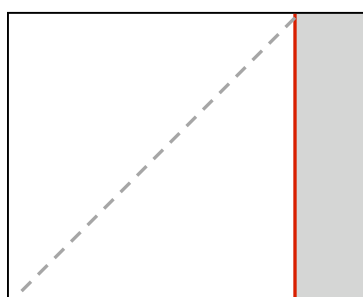
1. Use an 8 1/2 inch x 11 inch piece of paper.



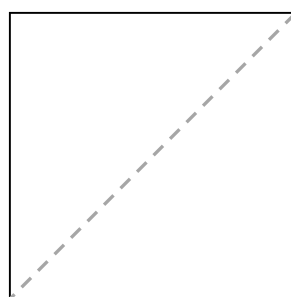
2. Fold corner A. over to the side as shown.



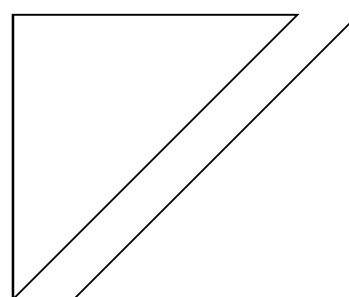
3. Carefully draw a line along the edge of the folded shape (red line shown in diagram).



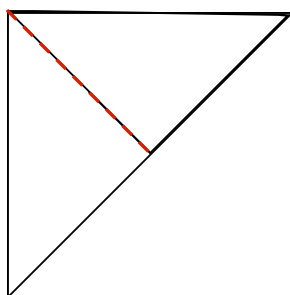
4. Cut along the line that you drew and discard the rectangular piece. You should have a square left with a diagonal fold.



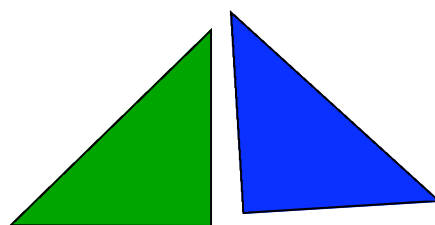
5. Now cut along the fold line.



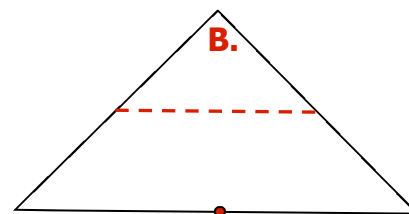
6. You should have two **congruent** triangles.



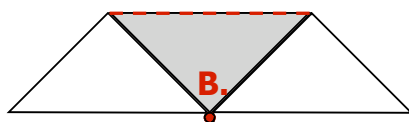
7. Cut one of the triangles in half as shown in the diagram.



8. Now you have two more smaller **congruent** triangles.

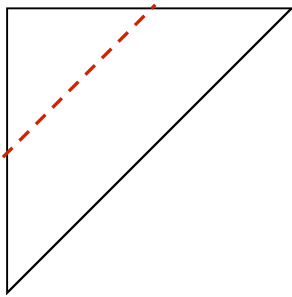


9. Take the other big triangle and fold the apex (corner labeled B.) over to the middle of the base of the triangle.

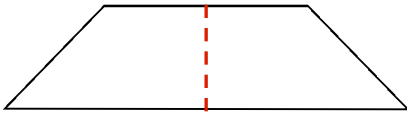


# How to Make a Tangram

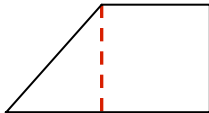
## By Folding



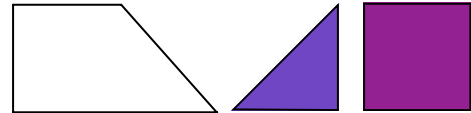
**10.** Unfold the triangle and cut along the fold line. You should have a medium-sized triangle and a trapezoid.



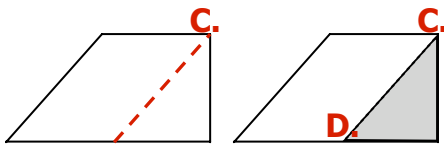
**11.** Fold the trapezoid in half...



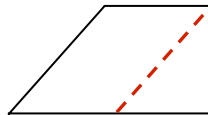
...and then in half again. Open and cut along the folds.



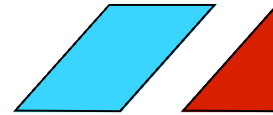
**12.** Now you should have a trapezoid with a right angle, a square, and another small triangle.



**13.** On the trapezoid, draw a line that is parallel to the angled side from corner C. If you would like you could use the smaller triangle from #12. and trace the line from point C to point D.

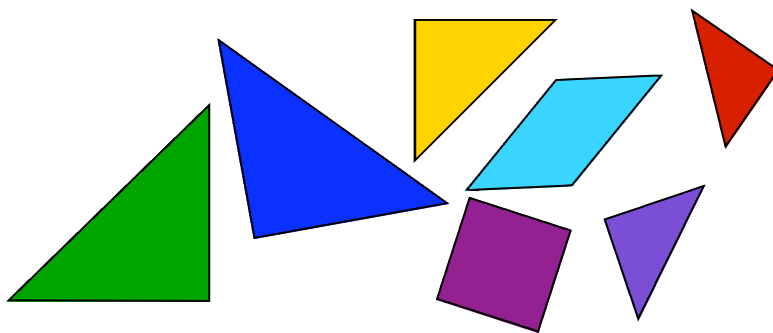


**14.** Cut along the line you drew.



**14.** That should give you a parallelogram and another small triangle.

Your puzzle is done and ready for fun!



There are seven pieces in a Tangram puzzle:

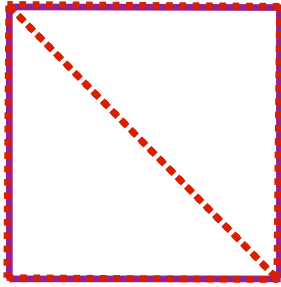
- two large triangles
- one medium triangle
- two small triangles
- one parallelogram
- one square.

Websites used for reference:

[http://www.jamesrahn.com/Geometry/afolding\\_a\\_tangram.htm](http://www.jamesrahn.com/Geometry/afolding_a_tangram.htm)

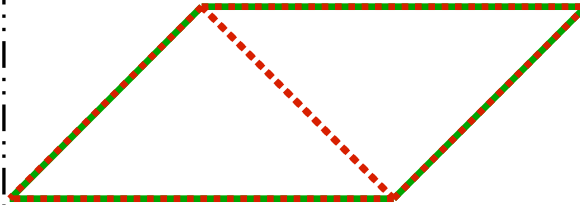
<http://mathforum.org/trscavo/tangrams/construct.html>

# Working with Tangram Fractions and Equivalencies



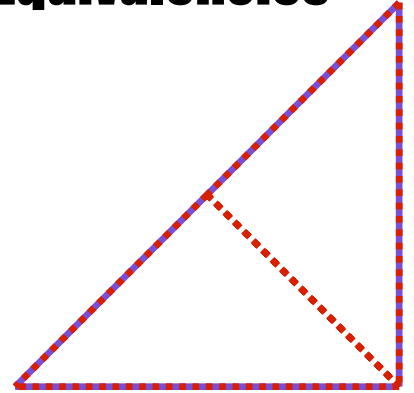
How many of the **small triangles** make up the **square**?

That means that a **small triangle** is what fractional part of the **square**?



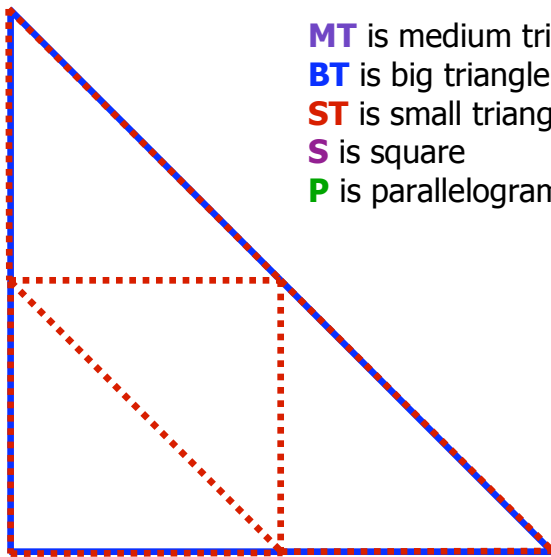
How many **small triangles** can be put on top of the **parallelogram**?

What fractional part of a **parallelogram** is a **small triangle**?



How many **small triangles** fit on top of the **medium triangle**?

So what fractional part of a **medium triangle** is a **small triangle**?



**MT** is medium triangle  
**BT** is big triangle  
**ST** is small triangle  
**S** is square  
**P** is parallelogram

How many **small triangles** fit on top of a **large triangle**?

What fractional part of the **big triangle** is a **small triangle**?

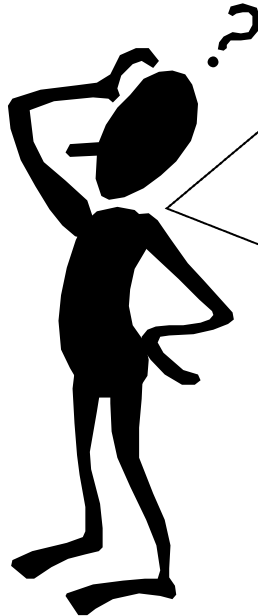
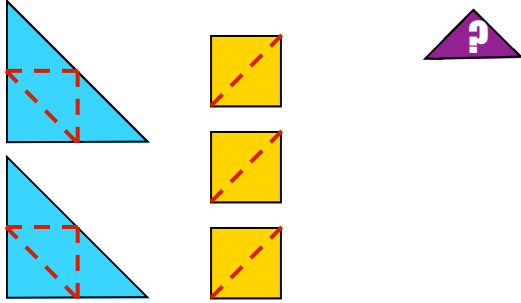
**State the relationships between the Tangram pieces.**

(Be careful some of the answers will be fractions.)

- 1 P** = \_\_\_\_\_ **S**
- 1 P** = \_\_\_\_\_ **MT**
- 1 P** = \_\_\_\_\_ **BT**
- 1 P** = \_\_\_\_\_ **ST**
- 1 S** = \_\_\_\_\_ **ST**
- 1 S** = \_\_\_\_\_ **MT**
- 1 S** = \_\_\_\_\_ **BT**
- 1 S** = \_\_\_\_\_ **P**
- 1 MT** = \_\_\_\_\_ **S**
- 1 MT** = \_\_\_\_\_ **P**
- 1 MT** = \_\_\_\_\_ **ST**
- 1 MT** = \_\_\_\_\_ **BT**
- 1 BT** = \_\_\_\_\_ **MT**
- 1 BT** = \_\_\_\_\_ **P**
- 1 BT** = \_\_\_\_\_ **S**
- 1 BT** = \_\_\_\_\_ **ST**

# Tangram Number Sentences

$$2 \text{ BT} + 3 \text{ S} = \underline{\hspace{2cm}} \text{ST?}$$



Okay, let's think this out. A big triangle is equal to 4 small triangles and the problem says there are 2 big triangles.

$2 \times 4 = 8$  A square is equal to 2 small triangles. So  $3 \times 2 = 6$  Next we need to add the two numbers together.

$$8 + 6 = 14$$

The **answer is 14 small triangles**. Two big triangles plus 3 squares is the same as 14 small triangles.

Now make up your own problems and see if you can stump your classmates. Remember that you need to be able to answer your own problems.