The Magic Square Paradox

**A magic square on
one side of the puzzle**

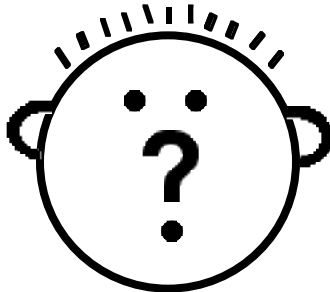| 24	3	18
9	15	21
12	27	6

**and a magic square on
the other side of the puzzle**

8	1	6
3	5	7
4	9	2

**and a square from the first side
that predicts the total of the second side.**

15

I wonder how it works.

A Magic Classroom

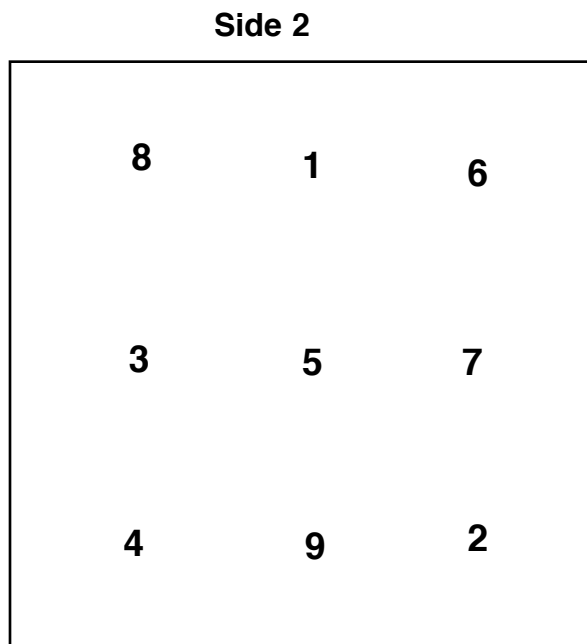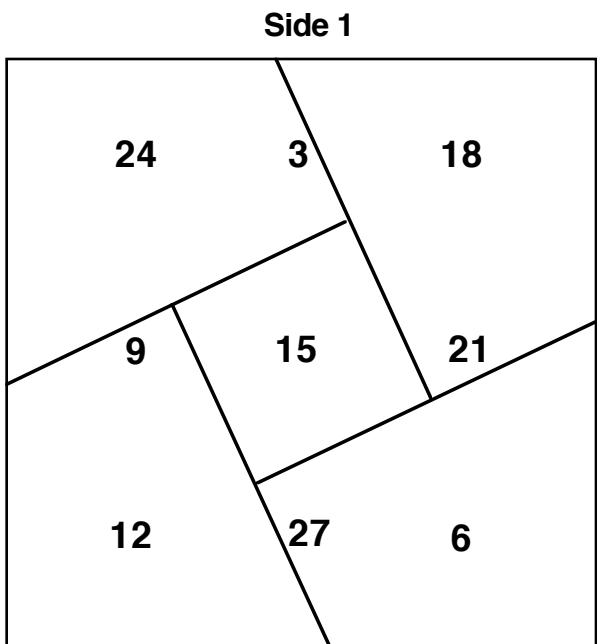**Help Create a World of Wonder**

The Magic Square Paradox
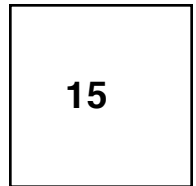
The basic routine

1. You place 5 puzzle parts the on a desk or table. Be sure the correct 5 parts are all **facing up**. These parts are labeled as side 1 on the printouts below. Ask the student to make a square shape out of the puzzle parts. When they have the puzzle complete, ask them to add up the 3 numbers in each row. Also ask them to add up the 3 numbers in each column and the 3 numbers in either diagonal. Confirm that the total of each row, column and diagonal is 45. Tell them that we call this type of square a **Magic Square** and we call the common total of 45 the **Magic Sum.**

2. Pick up the small square in the middle of the puzzle and hold it in your hand. Tell the student that you are taking away the square but that **a square still remains**. Turn over the remaining 4 parts and ask the student to try and make a square shape with them. When they have the puzzle complete. ask the student "is this also a Magic Square?" Ask them to find the total of all the rows and columns and both diagonals. When they say 15 lay the small square on the table and say "that's right it's 15." The square on one side of the puzzle has predicted the Magic Sum of the square on the other side!

1. The 5 pieces on side 1 make the magic square shown below. The magic sum. is 45. The middle square has a 15 in it.

2. Hold out the square with the 15 in it and turn over the other 4 pieces. These 4 pieces make the magic square shown below. This square has a **magic sum** of 15

Side 1

24	3	18
9	15	21
12	27	6

Side 2

8	1	6
3	5	7
4	9	2

The extra square you held out has the Magic Sum for this side of the square

15

How to make the puzzle pieces.

Cut out any of the three versions side 1 and side 2.   Glue the two faces together. **Be sure the tops are both facing up. Cut the puzzle parts using the lines shown on side 1.** This is the side with the odd angles. Cut out the 5th piece, the square with 15 on it.
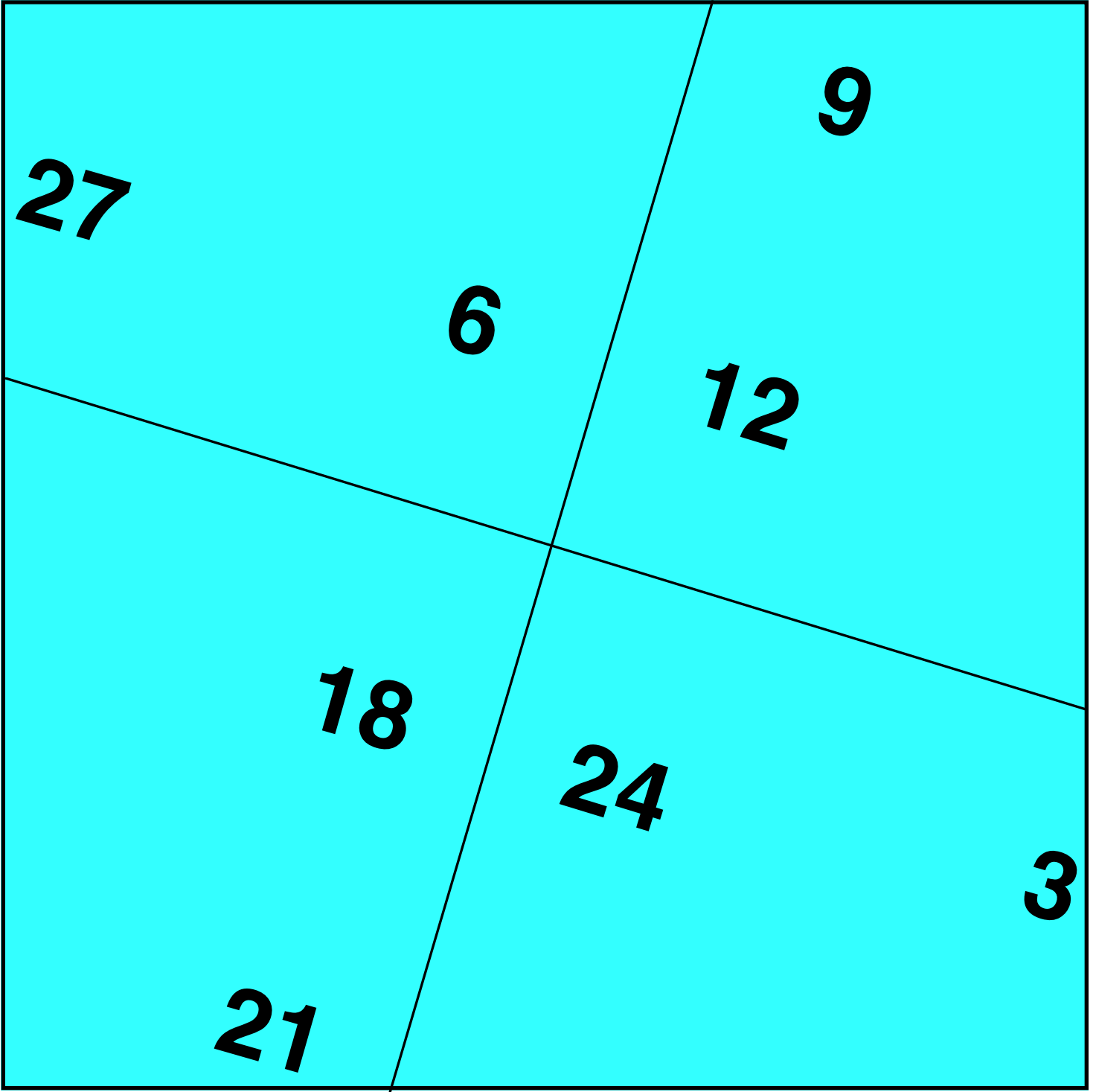
The printouts below have 3 different sides 2 number combinations
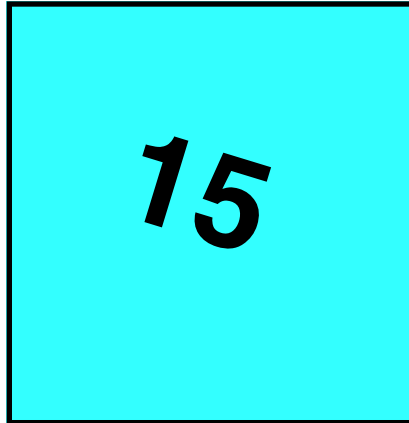
Two Sided Magic Square

Version 1

Side 1

Colored Version

9

27

6

12

18

24

3

21

The square that is the fifth part required for side 1

Use the square with the 15 on it for the basic procedure.

15

Optional

Your total is 15

For an optional finish I print out both squares and glue them together. I then use the side of the square with the 15 on it and set it aside with the 15 still showing. After the student has completed the second square and verified the totals are all 15 I then turn the small square over. The small squares has predicted the Magic Sum of the large square!

Version 1

Side 2

Colored version
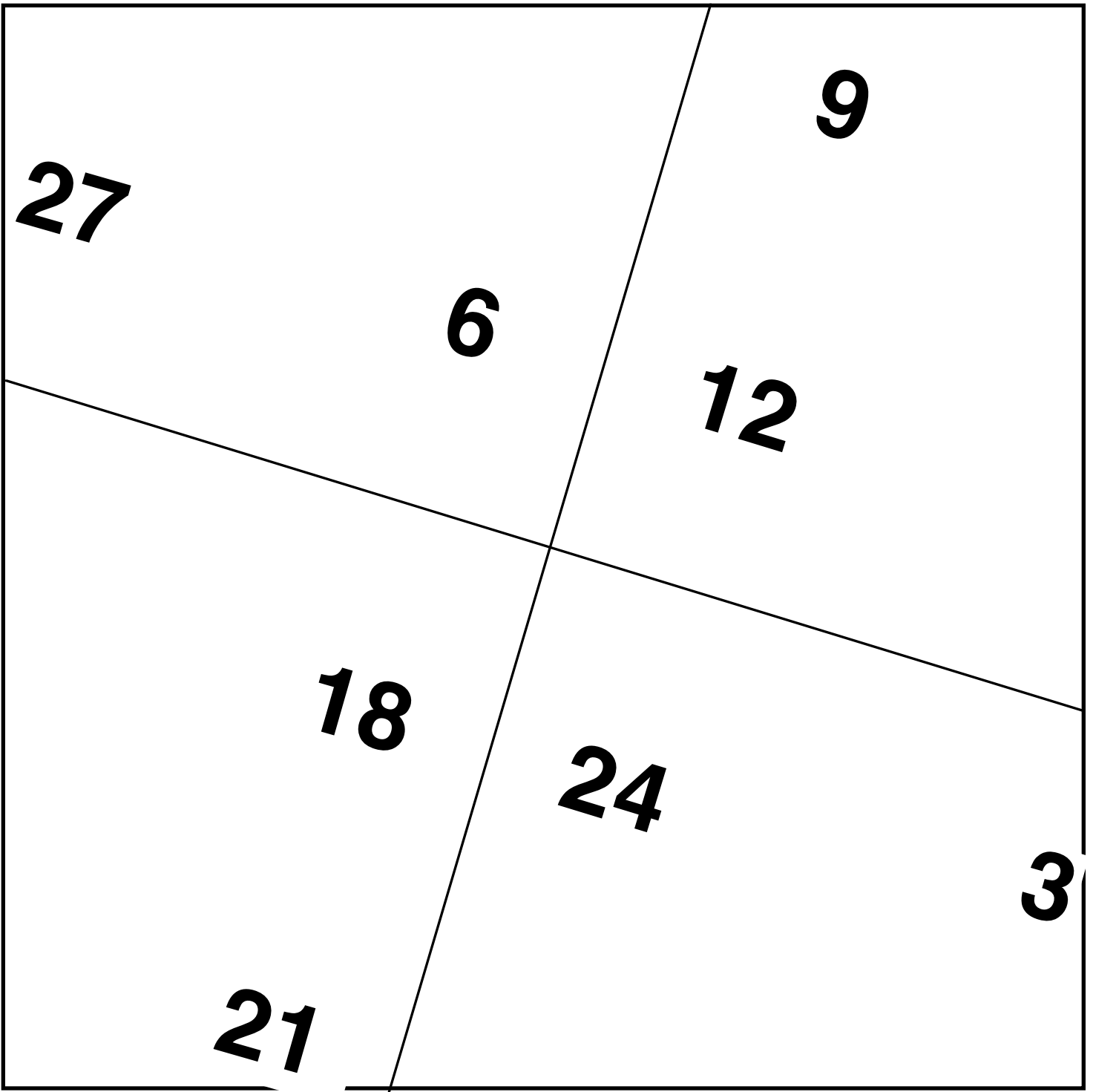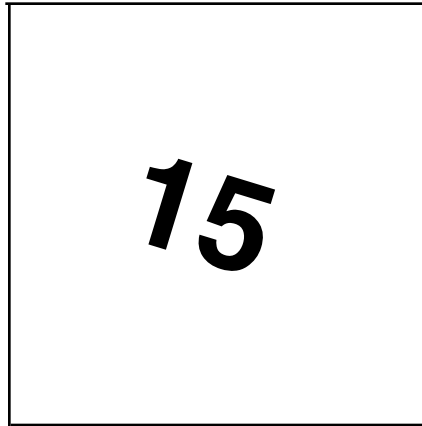
8	1	6
3	5	7
4	9	2

9

27

6

12

18

24

3

21

The square that is the fifth part required for side 1

Use the square with the 15 on it for the basic procedure.

15

Optional

Your
total
is 15

For an optional finish I print out both squares and glue them together. I then use the side of the square with the 15 on it and set it aside with the 15 still showing. After the student has completed the second square and verified the totals are all 15 I then turn the small square over. The small squares has predicted the Magic Sum of the large square!

8	1	6
3	5	7
4	9	2

10

18

11

16

14
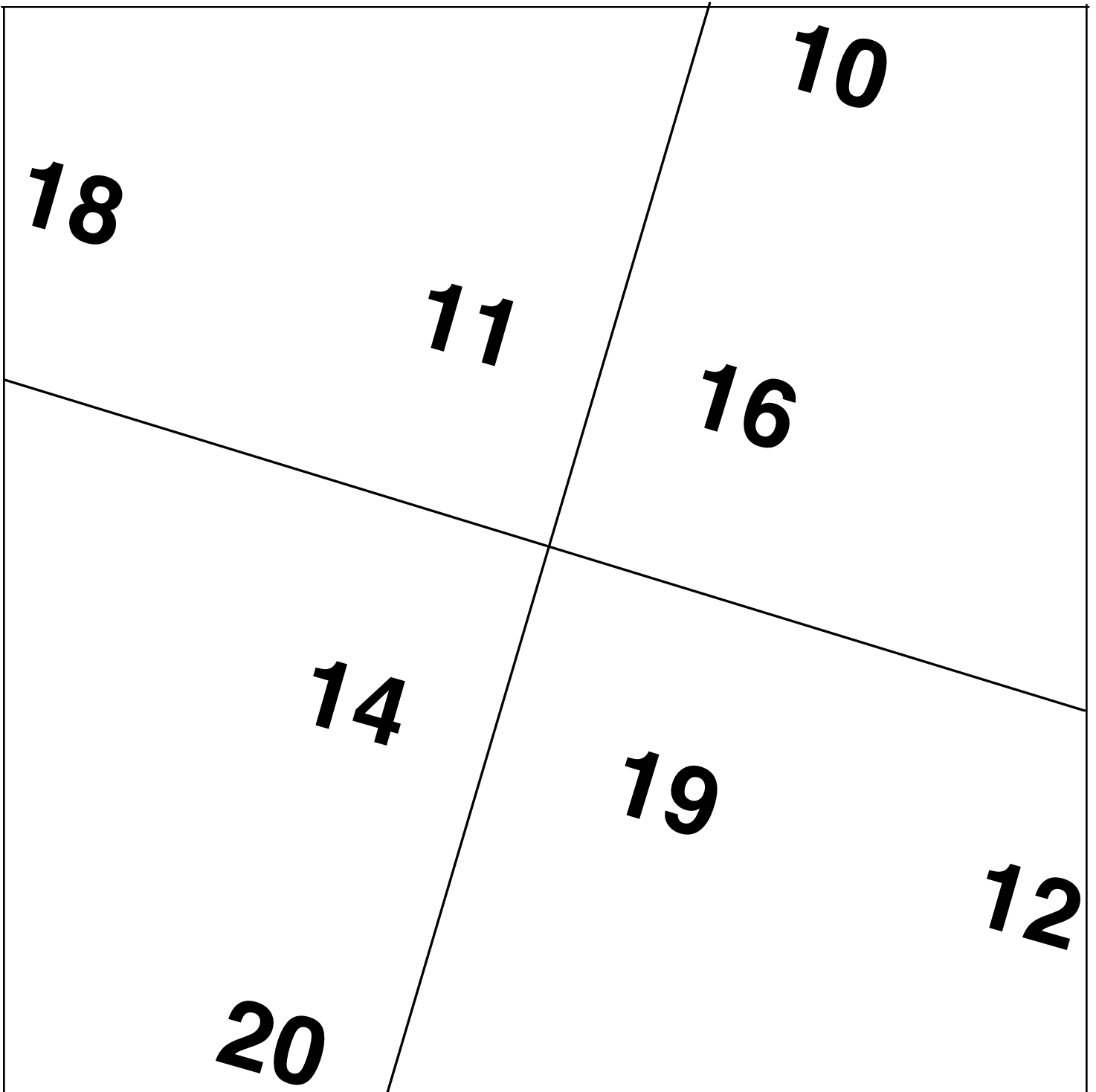
19

20

12
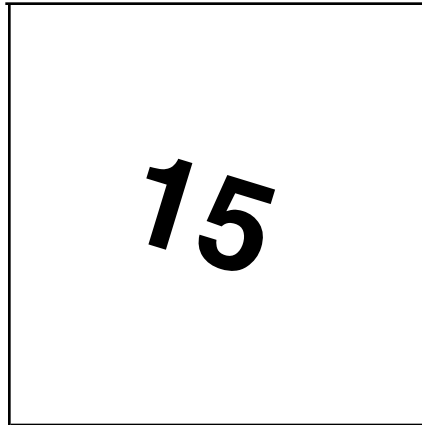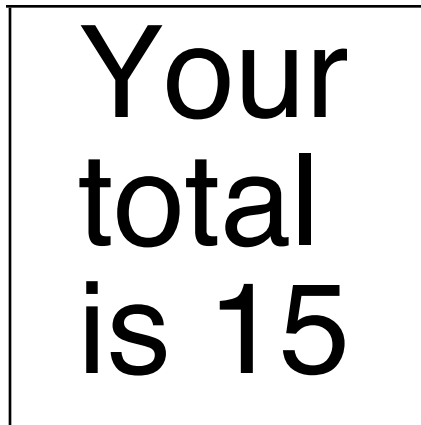
The square that is the fifth part required for side 1

Use the square with the 15 on it for the basic procedure.

15

Optional

Your total is 15

For an optional finish I print out both squares and glue them together. I then use the side of the square with the 15 on it and set it aside with the 15 still showing. After the student has completed the second square and verified the totals are all 15 I then turn the small square over. The small squares has predicted the Magic Sum of the large square!
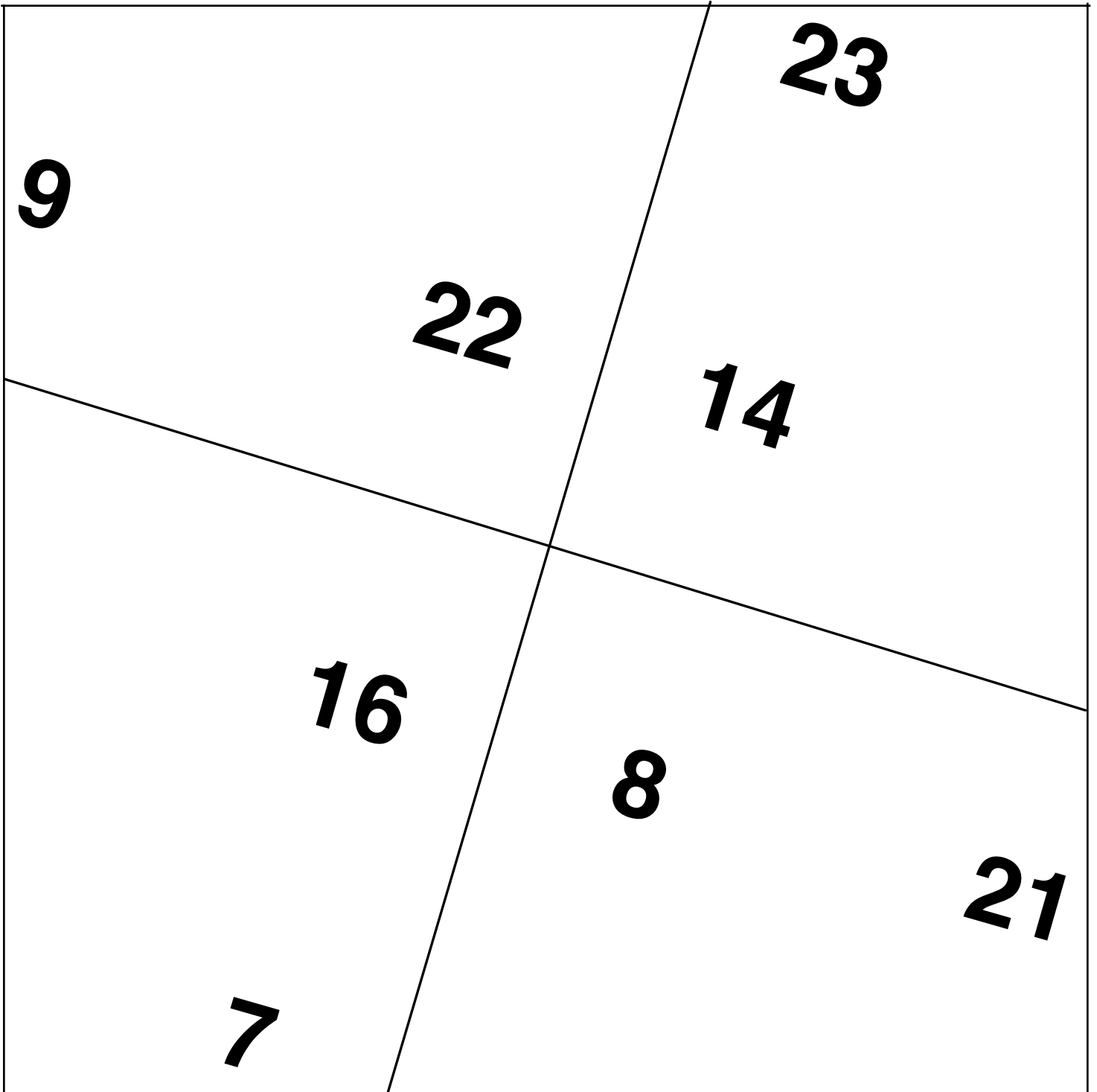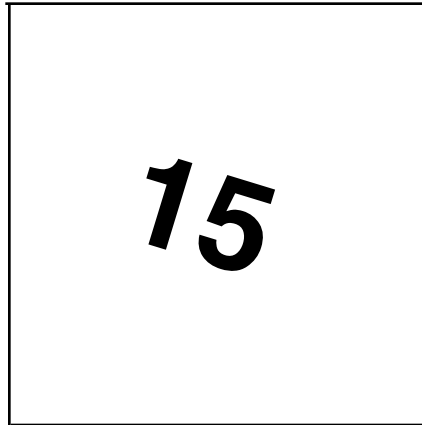
6   1   8

7   5   3

2   9   4

9

23

22

14

16

8

7

21

The square that is the fifth part required for side 1

Use the square with the 15 on it for the basic procedure.

15

Optional

Your total is 15

For an optional finish I print out both squares and glue them together. I then use the side of the square with the 15 on it and set it aside with the 15 still showing. After the student has completed the second square and verified the totals are all 15 I then turn the small square over. The small squares has predicted the Magic Sum of the large square!

4   3   8

9   5   1

2   7   6