

Some Sums

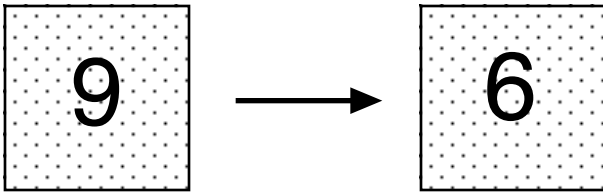
Column 1	Column 2
7	8
9	3
2	4
1	5

Procedure.



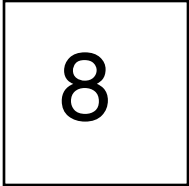
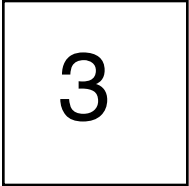




Cut out the 8 cards. Place the cards on the students desk in the 2 columns as shown. I have shaded the cards in Column 1 so it is easier to set up the cards. The order of the numbers in each column does not matter. Challenge them to **rearrange the cards** so that there are **2 columns** that each have 4 numbers and both columns have **the same total**.

Solution

Switch the the 8 and the 9 cards but ROTATE the 9 so that it becomes a 6.



I know what they will say when you show them the answer but remind them you did say **REARRANGE** the cards.

	Column 1	Column 2
		
		
		
		
Total	18	18

Note. I often see the tricks upside down. I have the tricks facing the student and I see the material upside down as I face the student. For this reason, I often underline under the 6's and the 9's that I use in my problems. This way there is no mistake about which number is which. This trick takes advantage of this very issue.

A proof involving the solution

The puzzle cannot be solved with the numbers given.

2 even numbers always add to an even number and 2 odd number add to an even number. so the sum of any two numbers must be an even number. This puzzle requires the totals of the 2 columns to be the same number. These two identical totals would themselves have to add to an even number.

To prove this let the sum of Column 1 be **X**. **Then the sum of** Column 2 must also be **X**. The two columns represent the total of the 8 numbers. **The total of the 8 numbers must be 2X which is an even number.**

The numbers 1 , 2 , 3 , 4, 5 , 7, 8 and 9 total 39. If the 8 number total 39 then the puzzle cannot be solved with the 8 numbers shown.

How can you resolve this dilemma. No movement of the numbers between the two columns will resolve it so the only option is the rearrange a number so that it is a different number.

Change an odd number into an even one

If you change one odd number into an even number then the total of the numbers would be even. Dividing that total by 2 would give you the total needed for each column. The only odd number that could be changed in to an even is the number 9. Rotating it so that it is a 6 makes the 8 numbers total 36. Each column needs to total 18. 1 , 2 , 7 and 8 total 18 and the remaining 3 , 4 5 and 6 also total 18. Puzzled solved.

Change an even number into an odd one

The even numbers are 2, 4 and 8. None of these number can be rearranged to become an odd number .

Could you start the trick with a 6 and change it to a 9 ?

Yes but it is not a very good puzzle. If you start with the number 6 instead of a 9 then the 8 numbers would already total 36 and a simple switching of number solves the puzzle

Extension. Try making a puzzle with 91 that changes to 16. A special font or handwritten numbers is required to make the number look correct. Tow puzzles like this are offered below

6 sets for classroom use

Column
1

Column
2

7	8
9	3
2	4
1	5

7	8
9	3
2	4
1	5

7	8
9	3
2	4
1	5

7	8
9	3
2	4
1	5

7	8
9	3
2	4
1	5

7	8
9	3
2	4
1	5

Some Sums

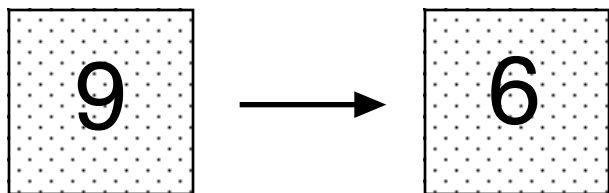
Column 1	Column 2
7	8
9	3
10	14
11	13

Procedure.


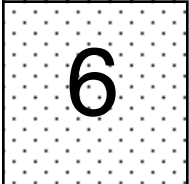
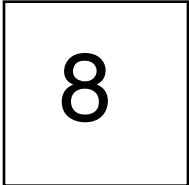
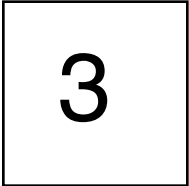
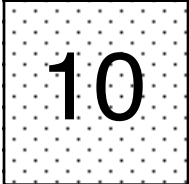


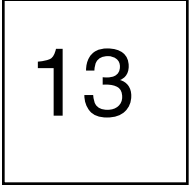
Cut out the 8 cards. Place the cards on the students desk in the 2 columns as shown. I have shaded the cards in Column 1 so it is easier to set up the cards. The order of the numbers in each column does not matter. Challenge them to **rearrange the cards** so that there are **2 columns** that each have 4 numbers and both columns have **the same total**.

Version 2 Solution

Switch the the 8 and the 9 cards but ROTATE the 9 so that it becomes a 6.



I know what they will say when you show them the answer but remind them you did say **REARRANGE** the cards.

	Column 1	Column 2
		
		
		
		
Total	36	36

Version 2: Six sets for classroom use

Column 1	Column 2
7	8
9	3
10	14
11	13

7	8
9	3
10	14
11	13

7	8
9	3
10	14
11	13

Column 1	Column 2
7	8
9	3
10	14
11	13

7	8
9	3
10	14
11	13

7	8
9	3
10	14
11	13

Some Sums

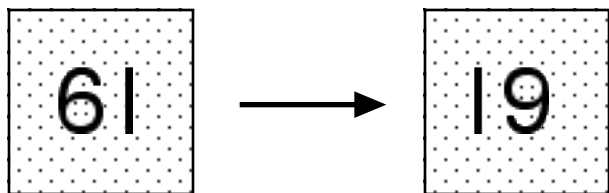
Column 1	Column 2
1	12
7	4
10	5
61	2

Procedure.

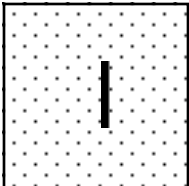




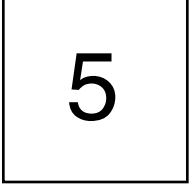
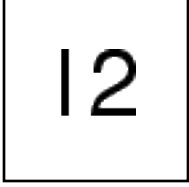
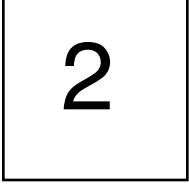
Cut out the 8 cards. Place the cards on the students desk in the 2 columns as shown. I have shaded the cards in Column 1 so it is easier to set up the cards. The order of the numbers in each column does not matter. Challenge them to **rearrange the cards** so that there are **2 columns** that each have 4 numbers and both columns have **the same total**.

Version 3 Solution

Switch the the 61 and the 12 cards but ROTATE the 61 so that it becomes a 19.



I know what they will say when you show them the answer but remind them you did say **REARRANGE** the cards.

	Column 1	Column 2
		
		
		
		
Total	30	30

Version 3: six sets for classroom use

Column
1

Column
2

1

12

7

4

10

5

61

2

1

12

7

4

10

5

61

2

1

12

7

4

10

5

61

2

Column
1

Column
2

1

12

7

4

10

5

61

2

1

12

7

4

10

5

61

2

1

12

7

4

10

5

61

2

Some Sums

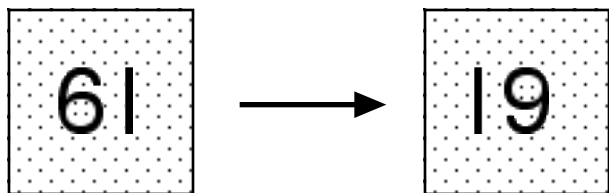
Column 1	Column 2
20	12
17	14
10	15
61	11

Procedure.

Cut out the 8 cards. Place the cards on the students desk in the 2 columns as shown. I have shaded the cards in Column 1 so it is easier to set up the cards. The order of the numbers in each column does not matter. Challenge them to **rearrange the cards** so that there are **2 columns** that each have 4 numbers and both columns have **the same total**.

Version 4 Solution

Switch the the 61 and the 12 cards but ROTATE the 61 so that it becomes a 19.



I know what they will say when you show them the answer but remind them you did say **REARRANGE** the cards.

	Column 1	Column 2
Total	59	59

Version 4: 6 sets for classroom use.

Column 1	Column 2
20	12
17	14
10	15
61	11

20	12
17	14
10	15
61	11

20	12
17	14
10	15
61	11

Column 1	Column 2
20	12
17	14
10	15
61	11

20	12
17	14
10	15
61	11

20	12
17	14
10	15
61	11