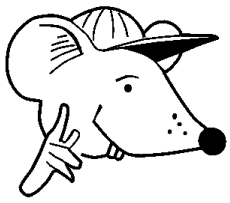
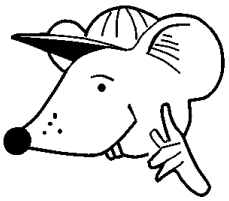


MATHEMATICS



Y1 Number
1195

Solve mathematical puzzles and investigate.

Equipment

Paper, pencil, ruler
Dice, number cards, buttons/counters, boxes etc

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Concepts

This module is an introduction to the investigative approach to mathematics. It is concerned with children using their knowledge to solve problems and puzzles, find patterns, make generalisations and begin to predict.

A key question to get children to ask themselves is the, “What would happen if…..” and not be afraid to ask the question and then investigate to find the answer.

Often investigations involve, “how many ways” activities. A key part of this is for children to check what they have done, check that they are accurate and that they have not repeated themselves. A lot of discussion can evolve from questions such as, “is 1 + 2 + 3 the same as 3 + 2 + 1 ?” In some cases it will be, but in others it may not e.g. three different dice being thrown when checking the total number of possibilities.

On many of these activities the children could continue by making up their own, similar, problems – this should be actively encouraged! For instance a child might move on from using two cards to ‘make ten’ to using three, and both addition and subtraction.

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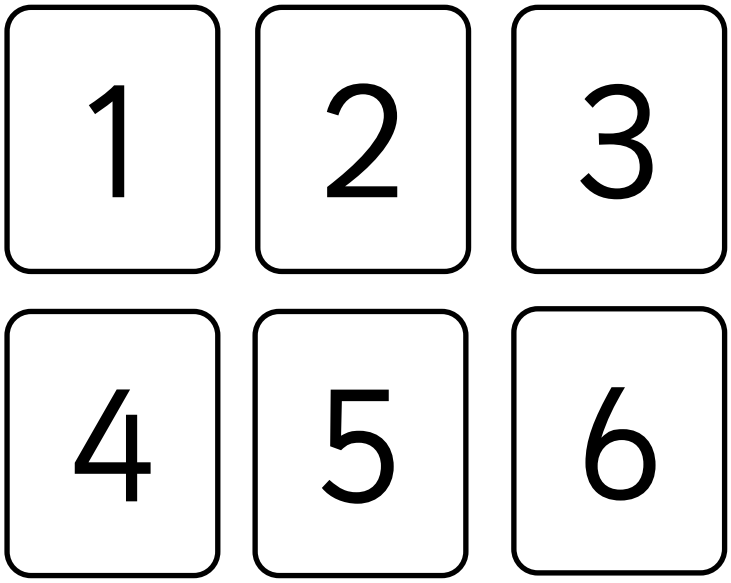
Making 4



Make 4 with these cards.

How many different ways can you make 4 with these cards?

You can add two cards, or you can take away one number from another.

I made 4 like this:

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Making 10

0	1	2
3	4	5
6	7	8
9		

Make 10 by adding with two cards.

How many different ways can you make 10 with these cards?

I made 10 like this:

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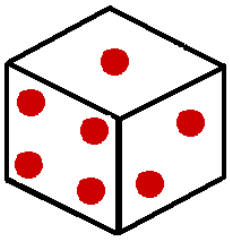
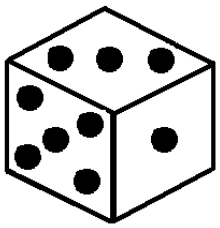
Scoring 6



Red



Black

How many ways can you score a total of 6 when you roll two dice?
Record your answers below.

Red	Black	Total
		= 6
		= 6
		= 6
		= 6
		= 6

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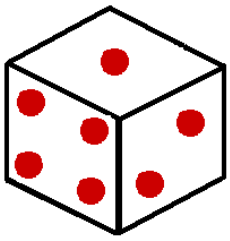
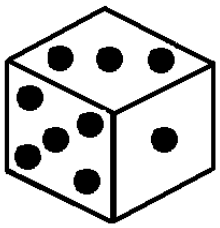
Scoring 8



Red



Black

How many ways can you score a total of 8 when you roll two dice?
Record your answers below.

Red	Black	Total
		= 8
		= 8
		= 8
		= 8
		= 8

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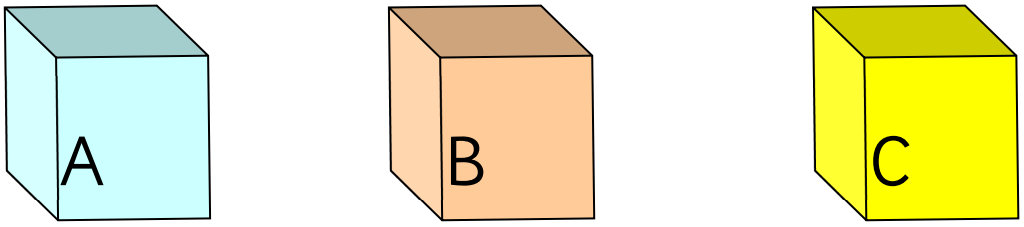
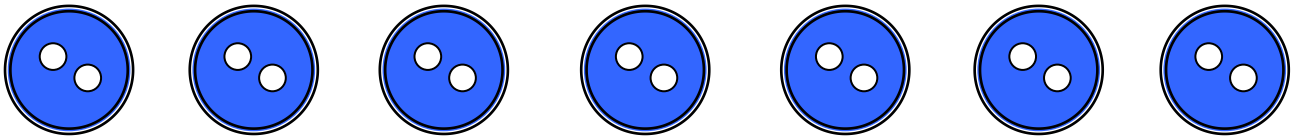
How many ways?



You have three boxes. You have 7 buttons.



How many ways can you put the buttons in the boxes?

I have done one for you:

Box A	Box B	Box C
5	1	1

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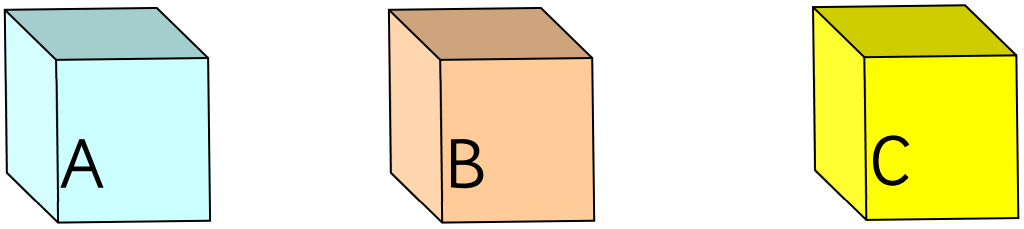
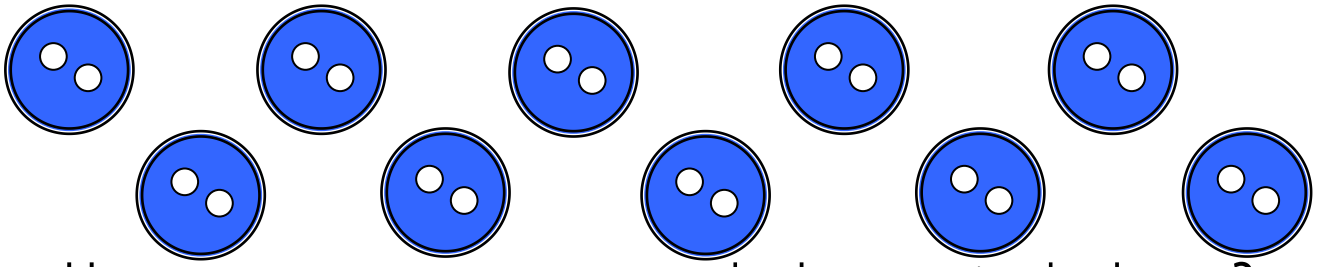
How many ways?



You have three boxes. You have 10 buttons.



How many ways can you put the buttons in the boxes?

I have done one for you:

Box A	Box B	Box C
8	1	1

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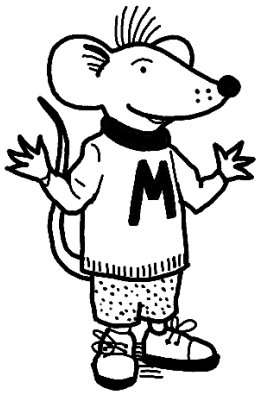
Three years older



I am three years older than Sammy.

How old could we be?

I think we are 7 years old and 4 years old.

Find as many possible answers as you can.

Record your answers below:

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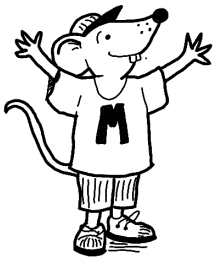
Two more toffees



I have two more toffees than Sammy.
How many could we have each?

Find as many possible answers as you can.

If I've got 3 then....., but I might have 4 or 5 or.....

Record your answers below:

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How many ways?

How many ways can you colour Subby's t-shirt and trousers using a red crayon and a blue crayon?

All the shirts must be either red or blue.

All the trousers must be either red or blue.

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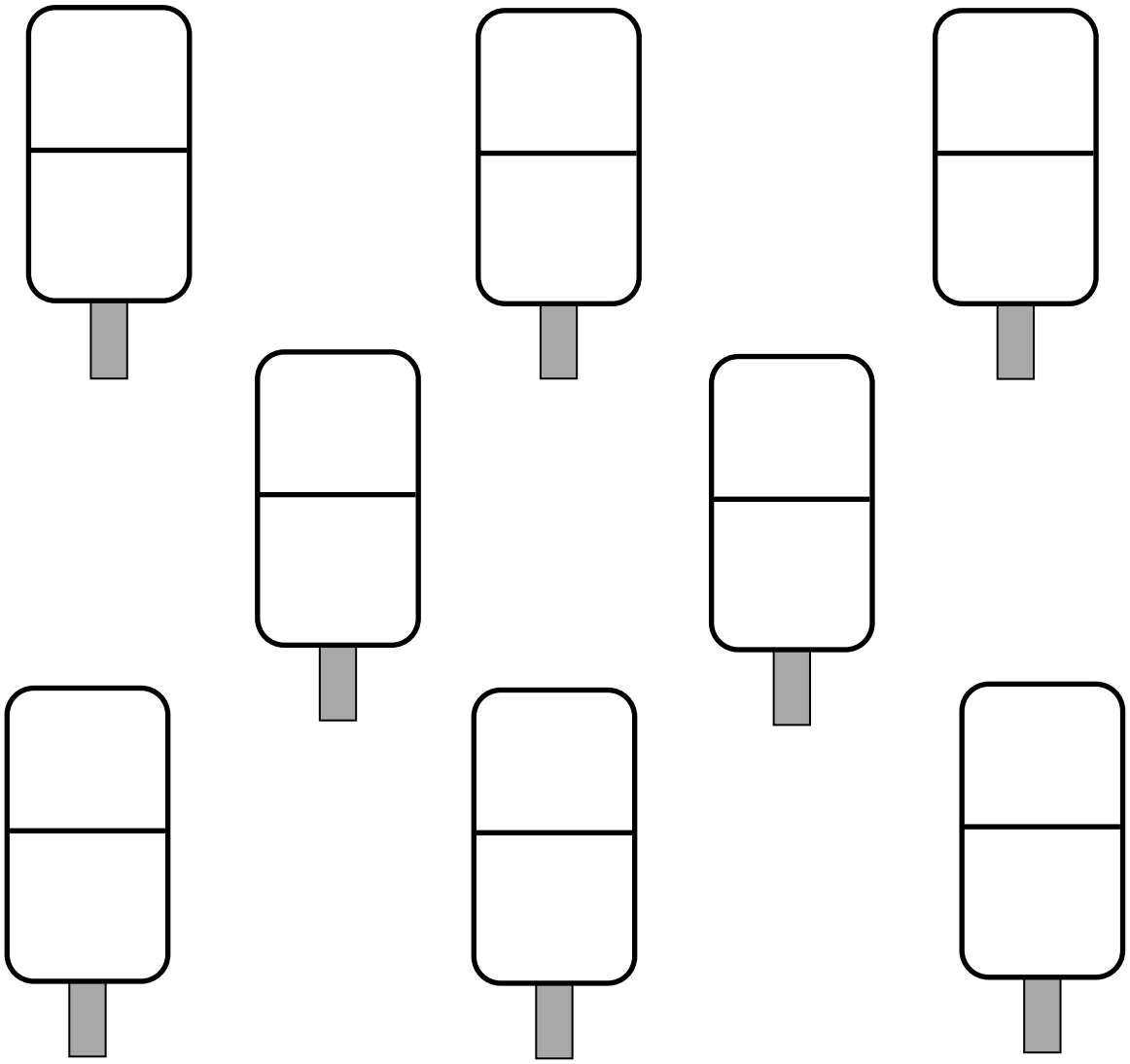
How many ways?

If you have a red crayon and a yellow crayon, how many ways can you colour the lolly?

Each part of the lolly must be one colour only!



Make sure you do not colour two the same.
Can you colour all of them, or not?

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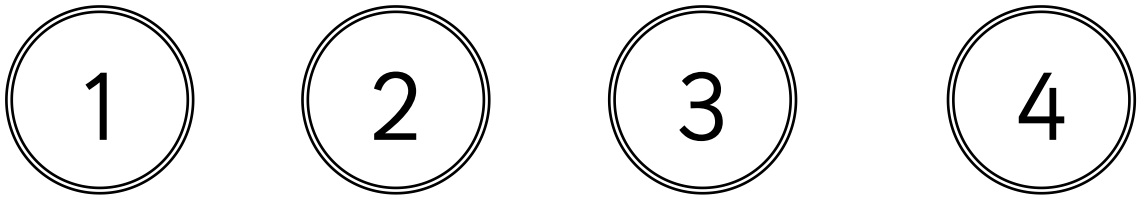
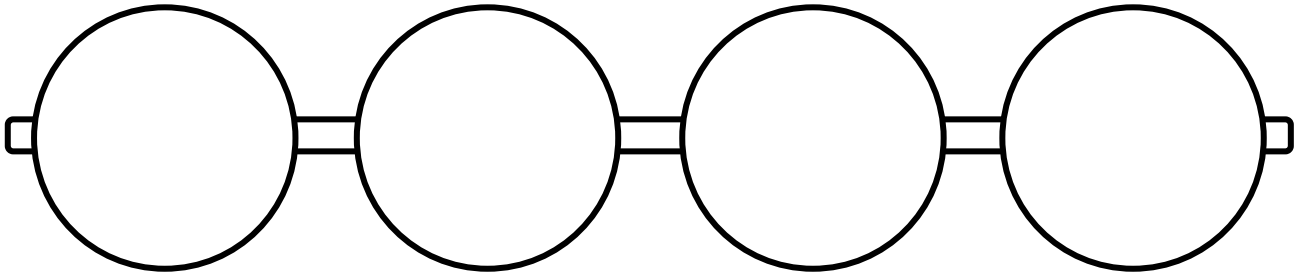
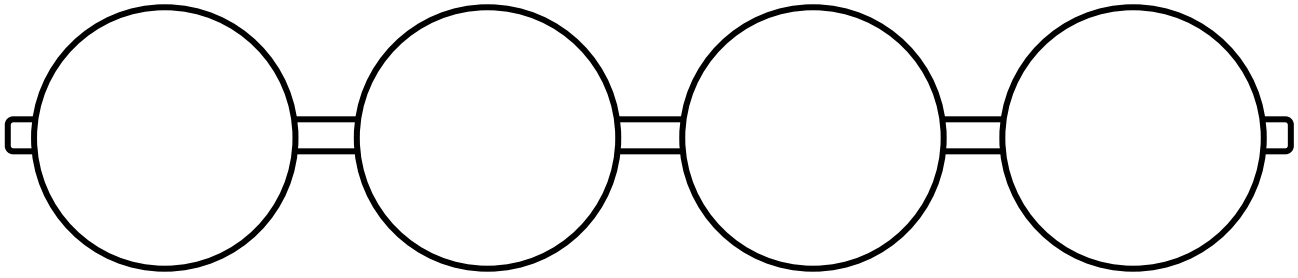
A difference of more than one



Can you put the numbers 1, 2, 3, and 4 into the circles so that the difference between each pair of joined numbers is more than one?



Now can you do it another way?



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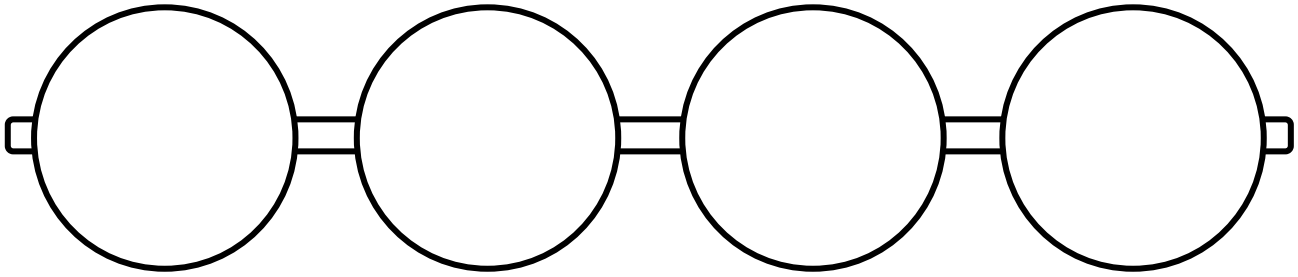
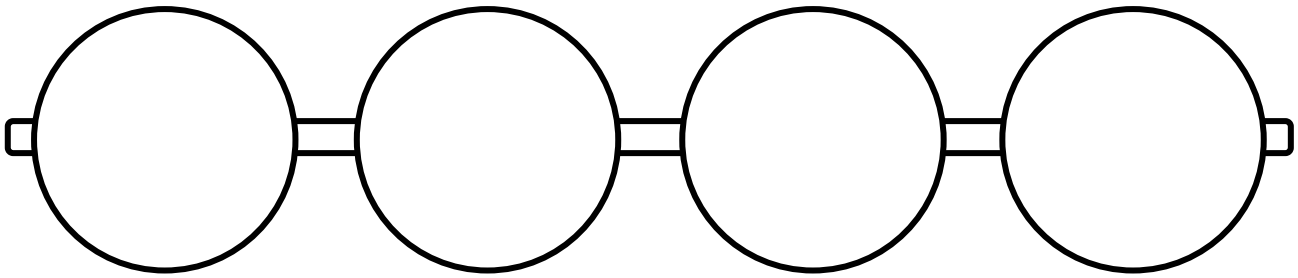
A difference of more than one

5 6 7 8

Can you put the numbers 5, 6, 7, and 8 into the circles so that the difference between each pair of joined numbers is more than one?



Now can you do it another way?



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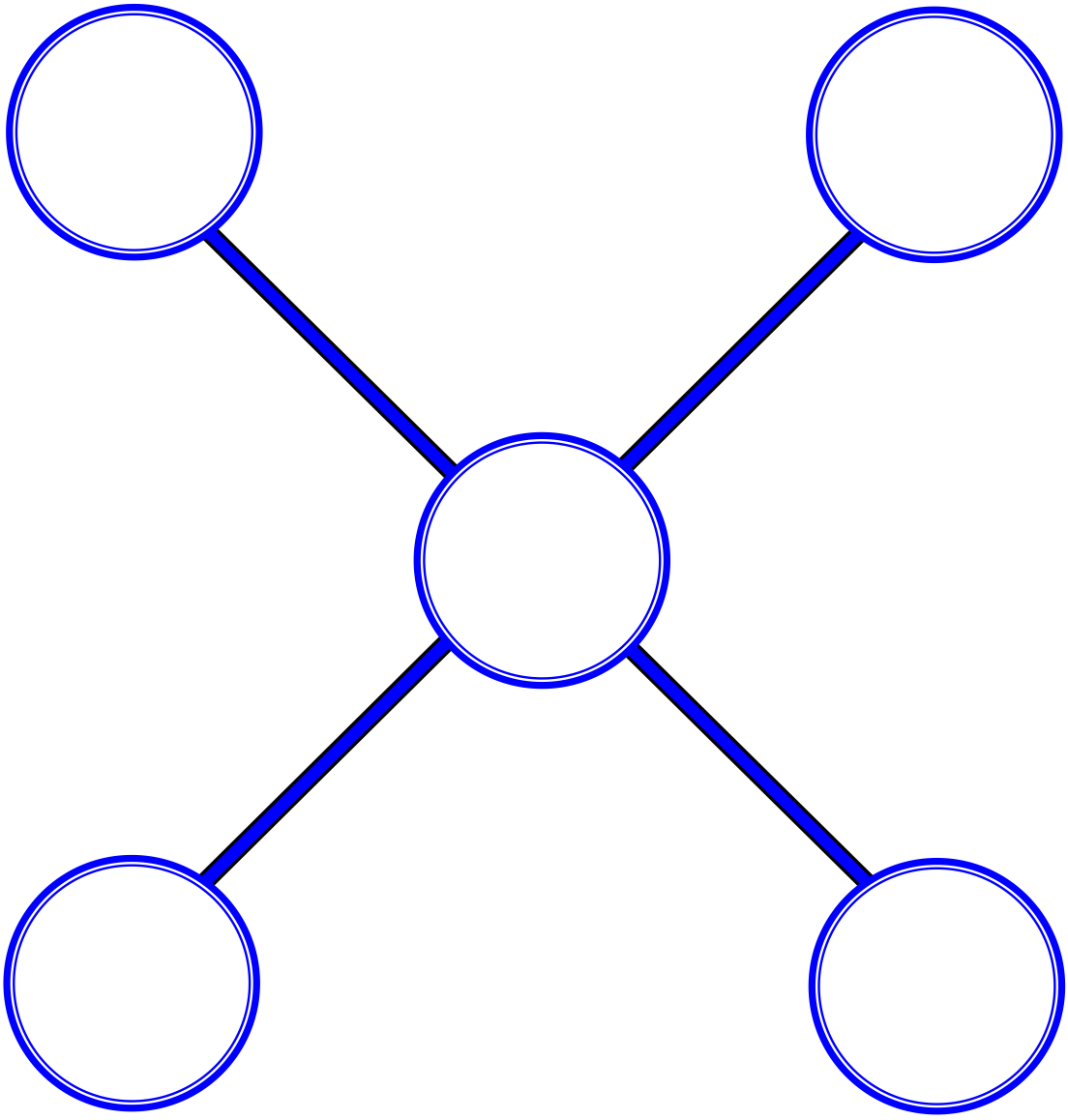
It all adds up!

1 2 3 4 5

Can you put the numbers in the circles below so that both lines add up to the same total?



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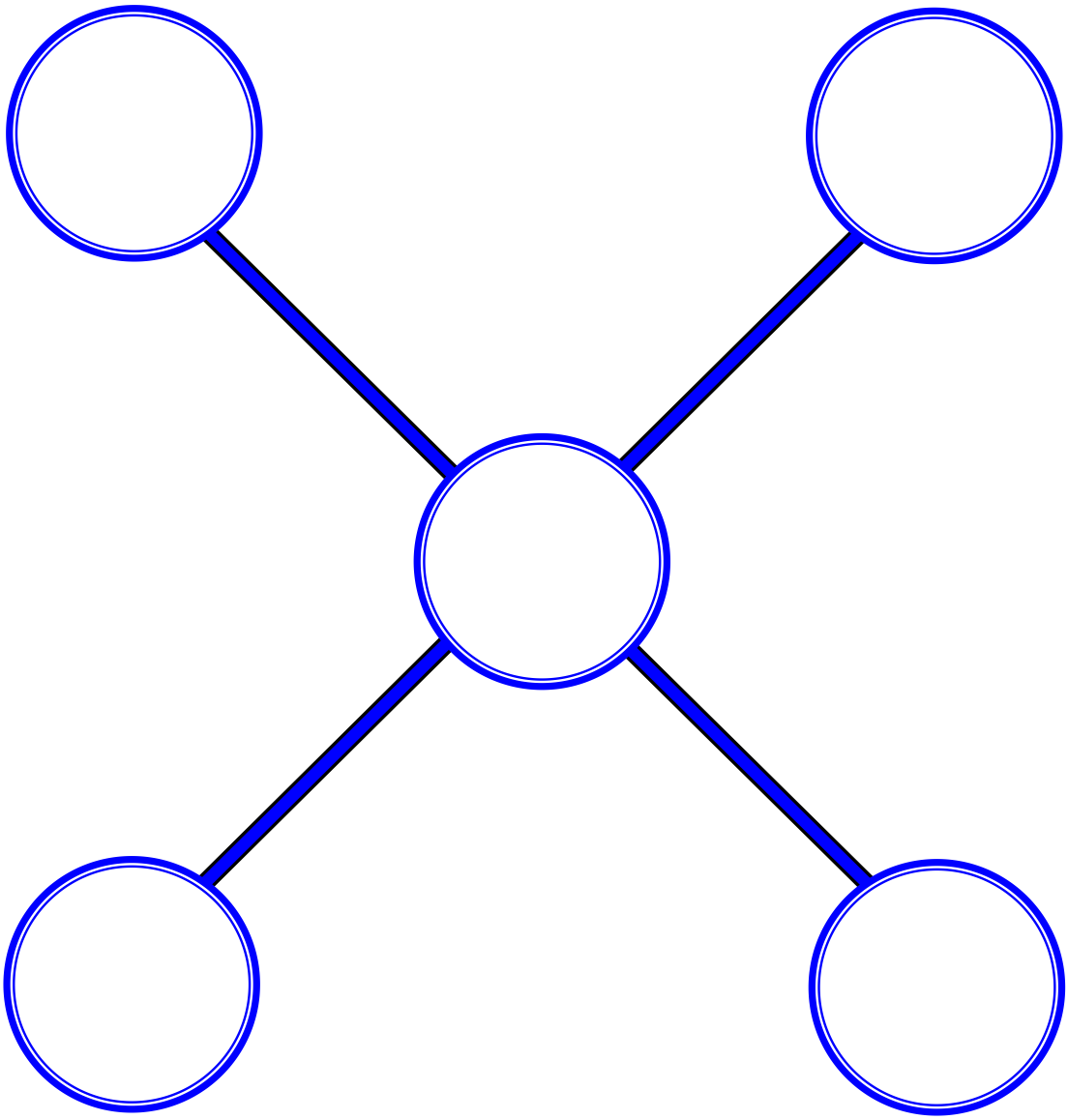
It all adds up!

0 2 4 6 8

Can you put the numbers in the circles below so that both lines add up to the same total?



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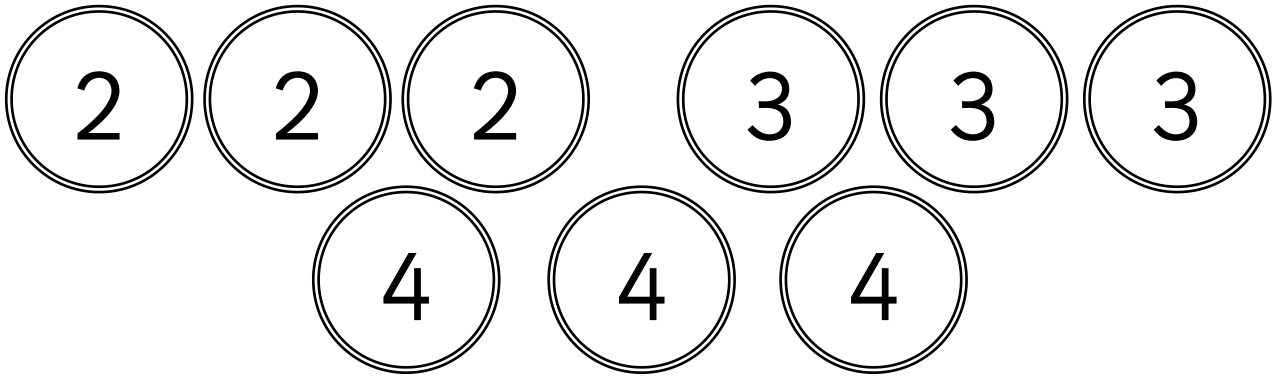
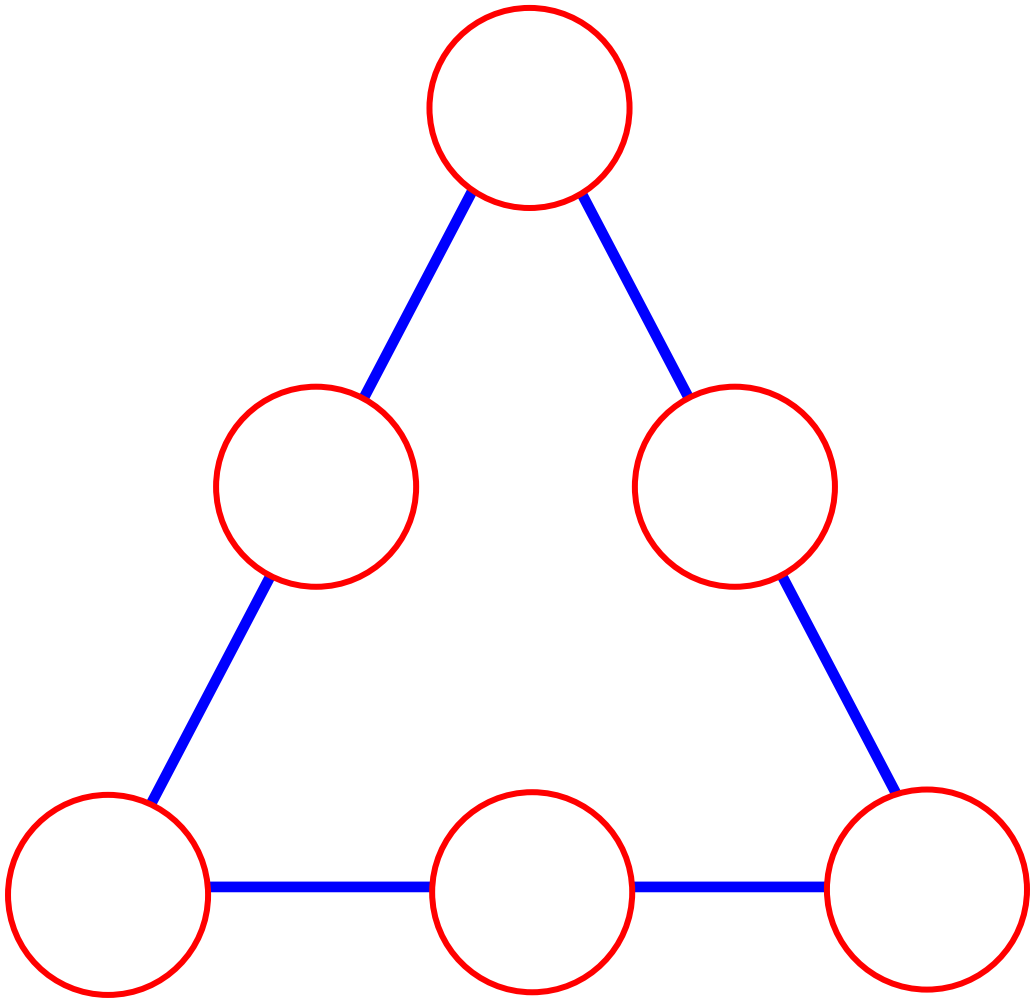
Triangular tricks



Put 2, 3 or 4 in the circles so that each line adds up to 9.

You can use each number more than once.



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Make ten

How many sums can you make up that come to the answer 10?

Well, I can start with
1 + 9
and then.....

Write your sums in the boxes below. You may need more paper. Ask your teacher or parent if you do.

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