



12 Days of Christmas Maths Puzzles

Day 1:

According to the song gifts were given for 12 days before Christmas.

On the first day of Christmas

my true love sent to me:

A Partridge in a Pear Tree

On the second day of Christmas

my true love sent to me:

Two Turtle Doves

and a Partridge in a Pear Tree

And so on until on the 12th day:

On the twelfth day of Christmas

my true love sent to me:

12 Drummers Drumming

Eleven Pipers Piping

Ten Lords a Leaping

Nine Ladies Dancing

Eight Maids a Milking

Seven Swans a Swimming

Six Geese a Laying

Five Golden Rings

Four Calling Birds

Three French Hens

Two Turtle Doves

and a Partridge in a Pear Tree

After the 12 days of Christmas, how many gifts has my true love sent me altogether?

Day 2:



The reindeer are playing a game on the elves. The elves want to swap places with the reindeer but the reindeer have made some rules about where they can move.

The rules are:

- A reindeer or an elf can only move to a place if it's free
- You can only move in the direction that you are facing (i.e. you cannot go backwards)
- You may jump over one place to get to a free space

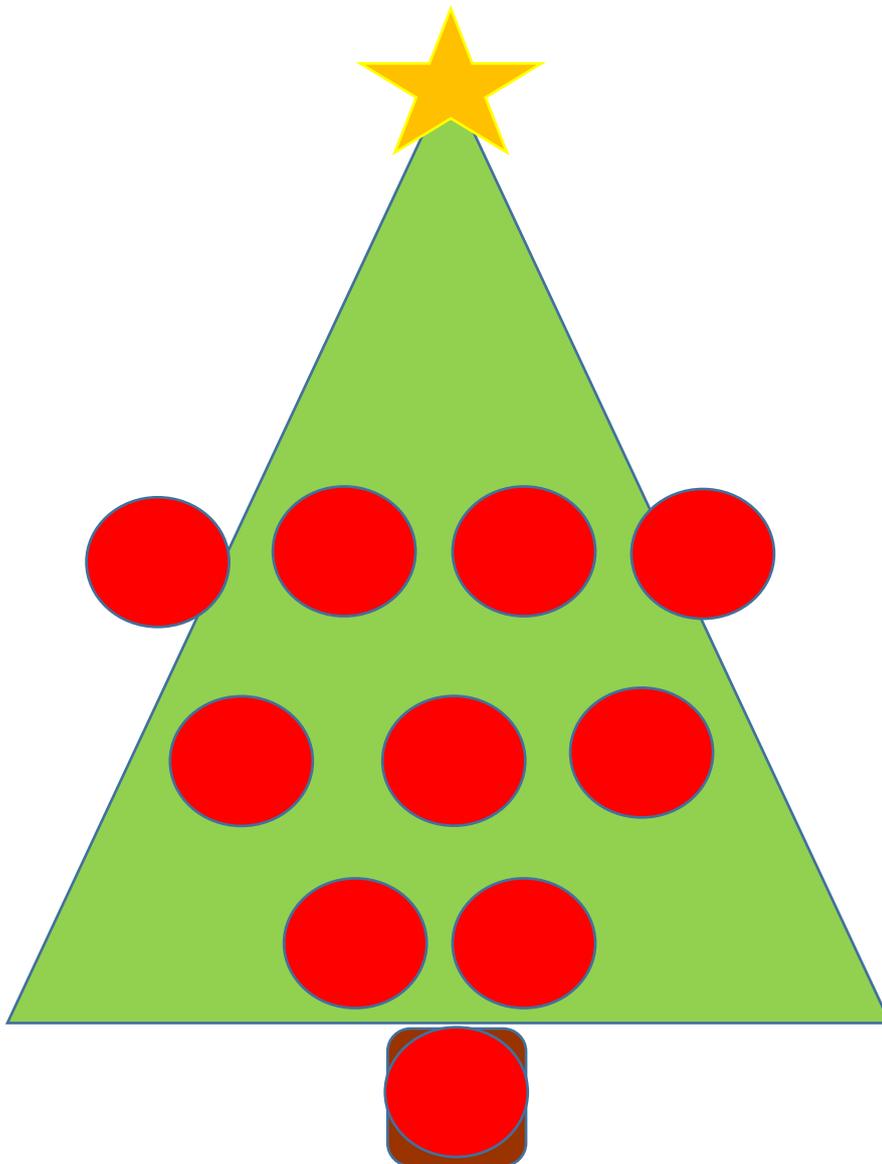
What is the least number of moves you can make to swap the places of the reindeer and elves?

They should look like this when finished:



Day 3:

An elf got quite confused decorating this Christmas tree. Can you rearrange the decorations so that the tree looks like this? Can you do it moving only 3 of the red decorations?

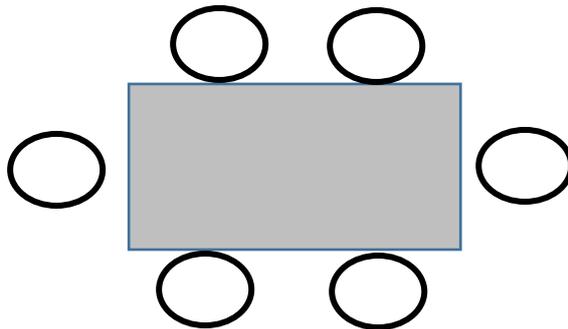


Day 4:

There are 6 people sitting around a rectangular Christmas table for dinner.

Jack is at one end of the table. Clodagh is sitting across from Isabel and beside Leo. Robert is across from Jack. Leo and Robert are not sitting beside each other.

Where is Alice sitting?



Day 5:

The elves have learnt some tricks in maths class and want to try it on you.

Take any two digit number (where both digits are different).

Reverse the digits to form a second number.

Subtract the smaller number from the bigger number and write down your answer.

Now do it again. Do you notice anything about all of your answers?

Day 6:

Three-fifths of the sweets in a bowl are red and the rest are blue.

Marta eats 20 sweets and the number of red sweets left is now five-sevenths of the total sweets.

If there were 90 sweets in the bowl to start with how many blue sweets did Marta eat?

Day 7:

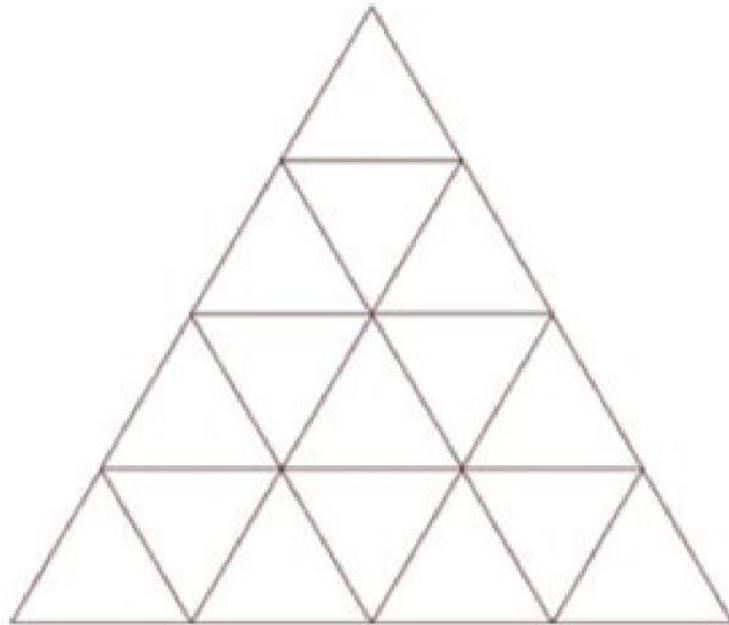
Mrs. Claus is baking her Christmas cake. She gets the bag of sugar which is 80% full.

She pours out 10% of the sugar from the bag to make the cake.

The remaining sugar in the bag now weighs 1728 g.

How much does a full bag of sugar weigh?

Day 8:



How many triangles are there altogether?

How many rhombuses?

How many hexagons?

What if you added another row on the bottom?

What would happen if you took one away?

Day 9: ([Nrich problem 613](#))

Christmas trees are planted in a rectangular array of 10 rows and 12 columns.

The farmer chooses the shortest tree in each of the columns and then marks the tallest of these 12 shortest trees with a letter A. Then the farmer chooses the tallest tree from each of the rows and marks the shortest of these 10 tallest trees with a letter B.

Which is the taller tree, A or B?



Day 10: ([Nrich problem 1993](#))

On Christmas Eve the children of one family left a note for Santa saying that all the girls would like a puzzle each and all the boys would like a book each. They left Santa this riddle to solve:

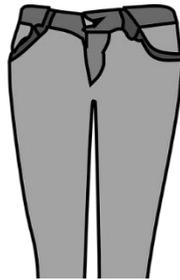
The girls have twice as many sisters as brothers and the boys have five times as many sisters as brothers.

How many puzzles and how many books did Santa leave for the children?

Day 11:

It's the day before Christmas Eve and all the elves are getting their clothes for Christmas day ready. Nic the Elf has three jumpers, two trousers and three hats.

How many different outfits consisting of one jumper, one hat and one pair of trousers could he make?



Day 12:

There are 24 children in Mr. Bell's class. On the day of the school holidays each child brought in a Christmas card for everyone else.

How many Christmas cards were given out that day?

