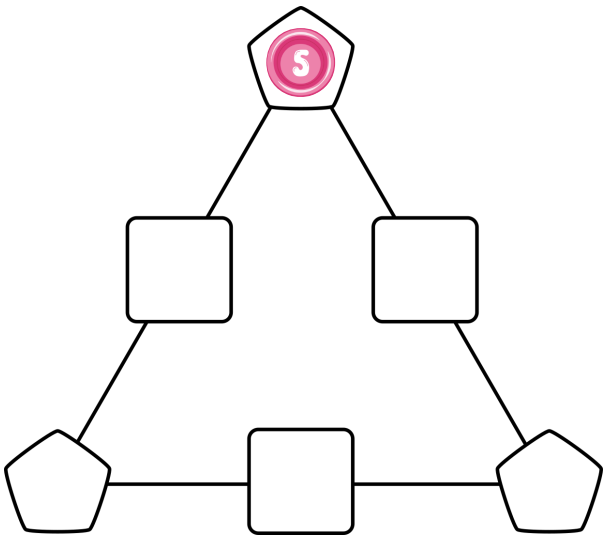
Challenge #1

Place 5 up the top of the triangle.

How many solutions are possible when 5 is placed on top?



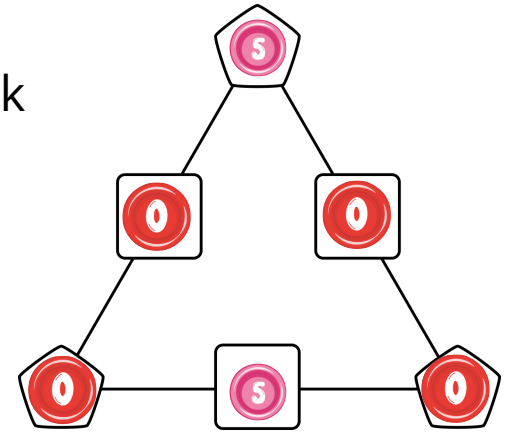
MATHS QUEST

Answer #1

There is only one solution.
When 5 is at the top, the only other number that can be on a shared line is 0.
This means 0 will be in the two bottom corners.

The only number that can work in the middle of that row is 5.

No other solutions will work.

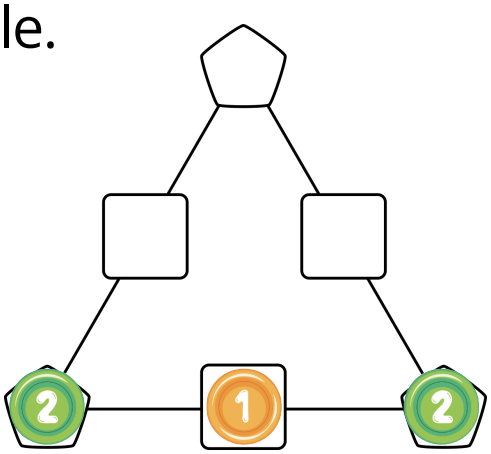


MATHS QUEST

Challenge #2

Set up the triangle so that the numbers in the bottom row are 2 then 1 then 2.

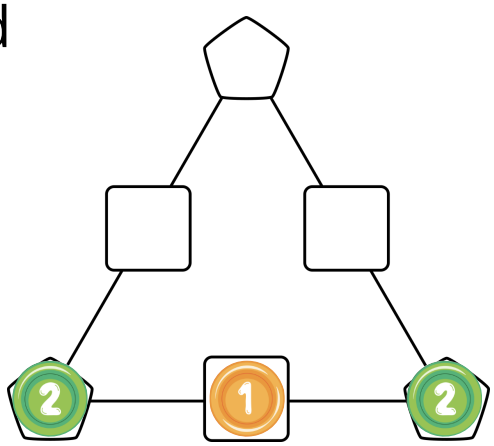
Find all the possible numbers that can go in the top corner of the triangle.



MATHS QUEST

Answer #2

0 can be on top, with 3 in the squares.
1 can be on top, with 2 in the squares.
2 can be on top, with 1 in the squares.
3 can be on top, with 0 in the squares.
This triangle can't be solved with 4 or 5 up the top.

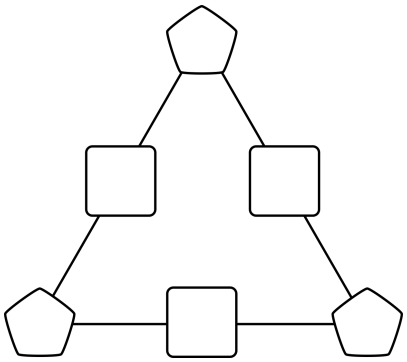


MATHS QUEST

Challenge #3

For this challenge, add the rule that the number in the corners must be the **same**.

How many solutions can you find when the corner numbers are all the same?

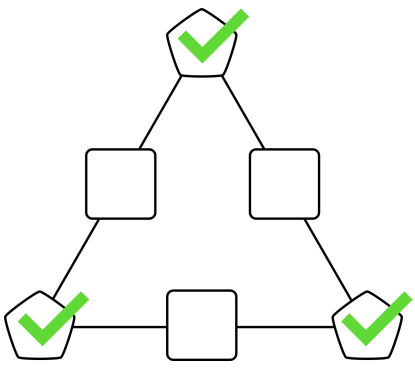


MATHS QUEST

Answer #3

There are **three** solutions.
0 can be placed in each corner with 5 in the squares.
1 can be placed in each corner with 3 in the squares.
2 can be placed in each corner with 1 in the squares.

As soon as 3 is in each corner, the lines will add up to more then 5 in total.

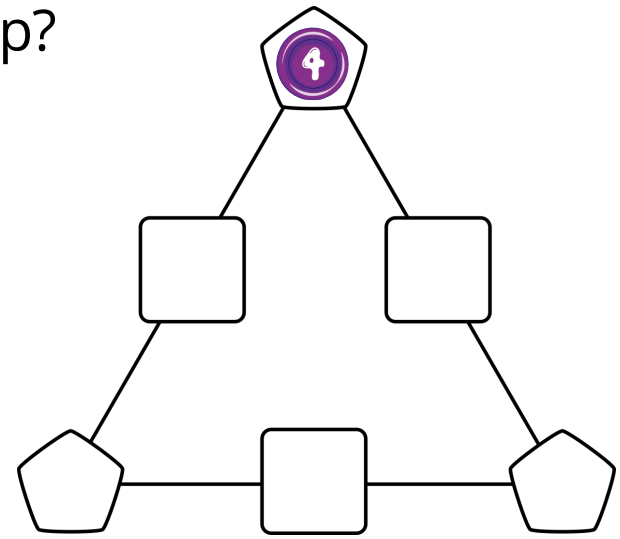


MATHS QUEST

Challenge #4

Place 4 at the top of the triangle.

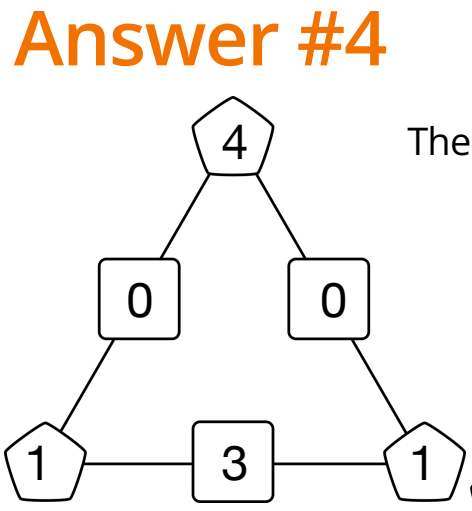
How many different solutions are possible when 4 is placed on top?

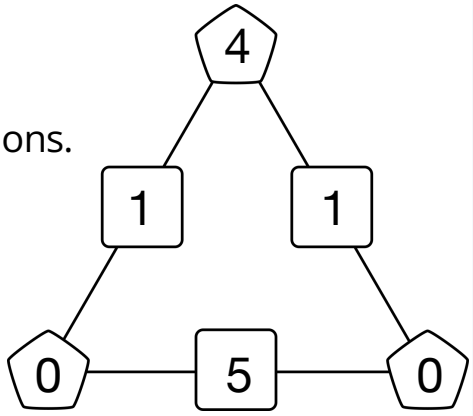


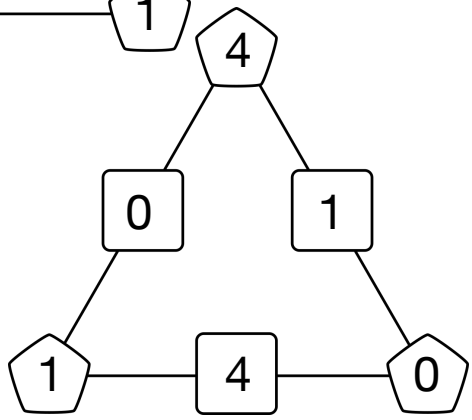
MATHS QUEST

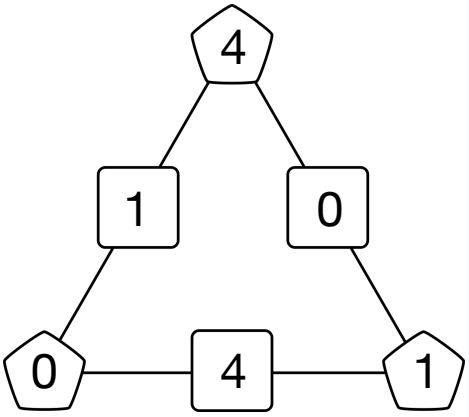
Answer #4

There are four solutions.









MATHS QUEST

Challenge #5 (Super Challenge!)

Which numbers can appear four times in the **same** solution?

MATHS QUEST

Answer #5 (Super Challenge!)

0 can appear four times
1 can appear four times
2 can appear four times

If 3 appears 4 times, at least two of them will be on the same line, making a total greater than 5.

MATHS QUEST