

Method

We are going to use trial and error for this live problem. Meaning we will type different numbers according to a possible rule for each light.

Note: When we say 'these numbers worked' we mean that all the numbers of that category worked. We tested up until 50.

Green

These worked

0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40,42,44,46,48,50

We think that green's rule is: Even Numbers. Meaning the green light lights up on the even numbers.

Yellow

These worked: 0, 1, 3, 6, 10, 15, 21, 28, 36, 45

The rule is that each number is the sum of numbers from one to n .

Red

These worked: 6, 16, 26, 36, 46

Rule: Ones place = 6. Meaning that any number that ends in 6 (26, 36, 46, 56, etc.) will light up the red light.

Blue

These worked: 0, 1, 4, 9, 16, 25, 36, 49,

The rule is n squared, or n times n .

Conclusion

The smallest number that lights up all of the lights is 36:

It follows red's rule of ending in six, It follows green's rule of being an even number, it follows yellow's rule of each number is the sum of the numbers 1 to n , it follows blue's rule of n squared or n times n .

