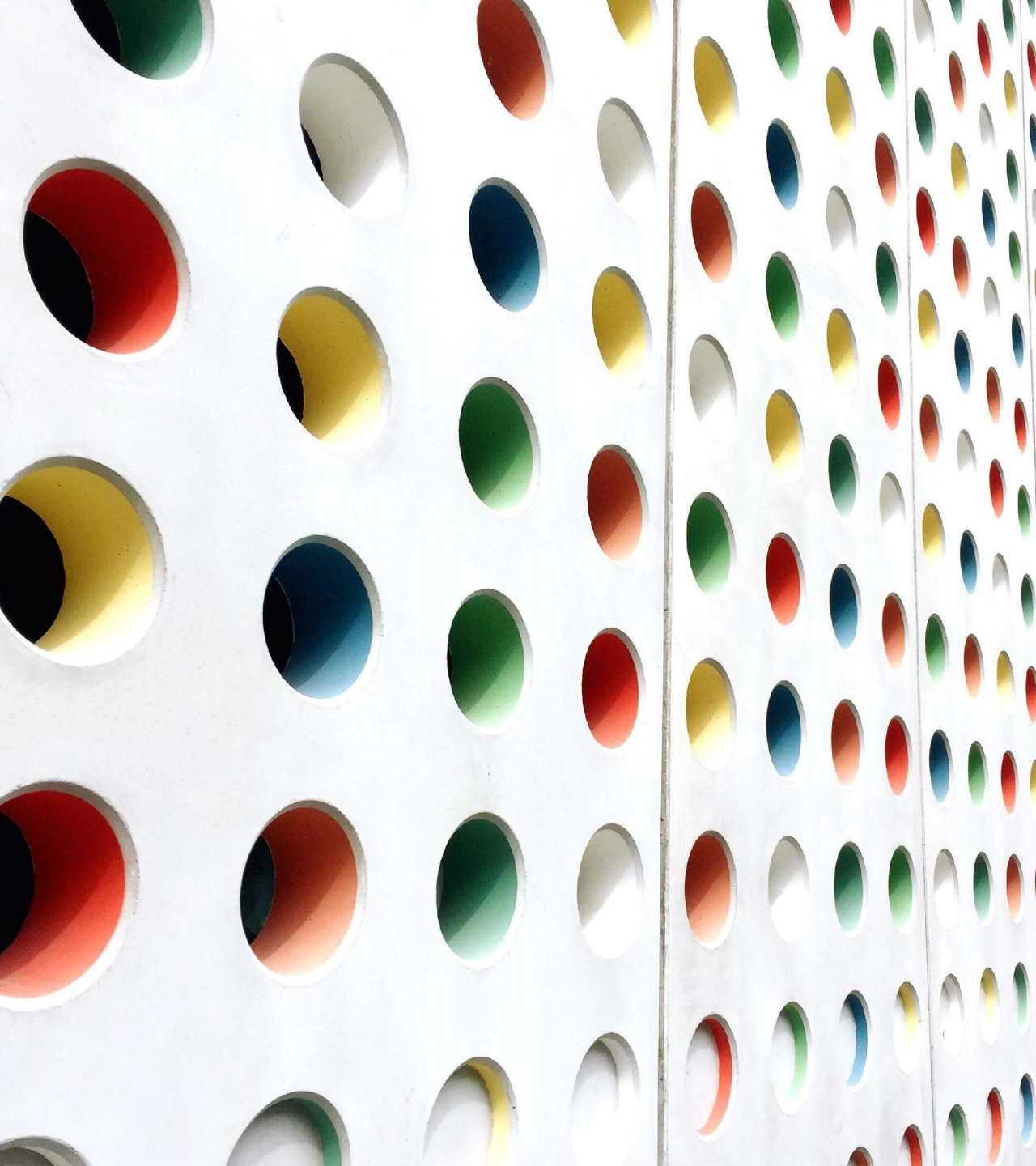




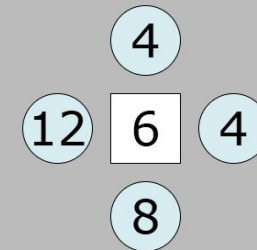
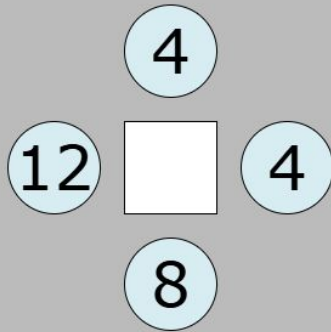
Connecting Averages

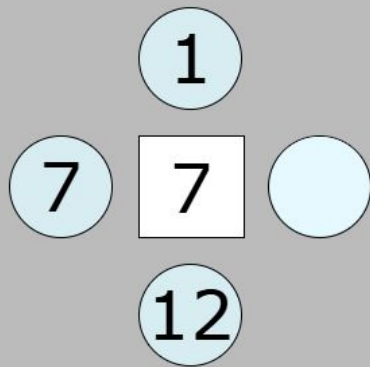
BY: PRAKUL RAMESH

SCHOOL:GANIT KREEDA

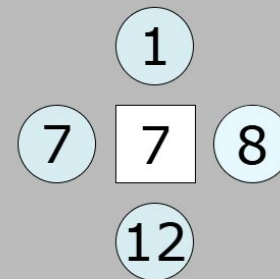
1x1 Grid

To find the mean, I add the numbers Surrounding the mean and divide the solution by four. Because the numbers surrounding the mean is four.



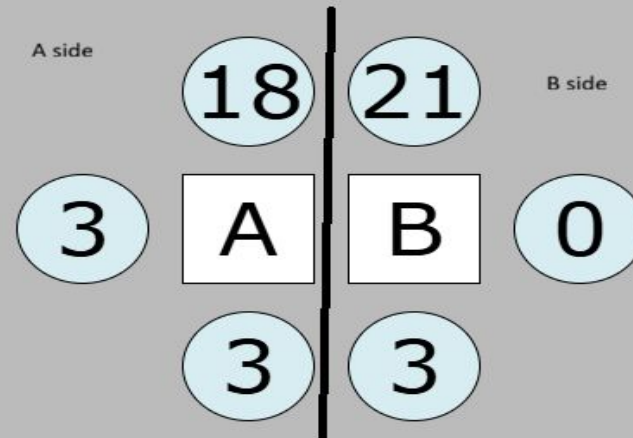


As I know that to find the mean, I add the numbers Surrounding the mean and divide the solution by four. Because the numbers surrounding the mean is four. To find the missing number I can multiply the mean by four as multiplication and division are reverse operations and then subtract the sum of the other three numbers. That is the solution.



1x2 Grid

In this grid there are two methods. In which is based on trial and error and the other method works all the time and it has a formula. But one thing is common in both the methods. We name all the squares. We name them as given in the picture in the right.



trial and error method

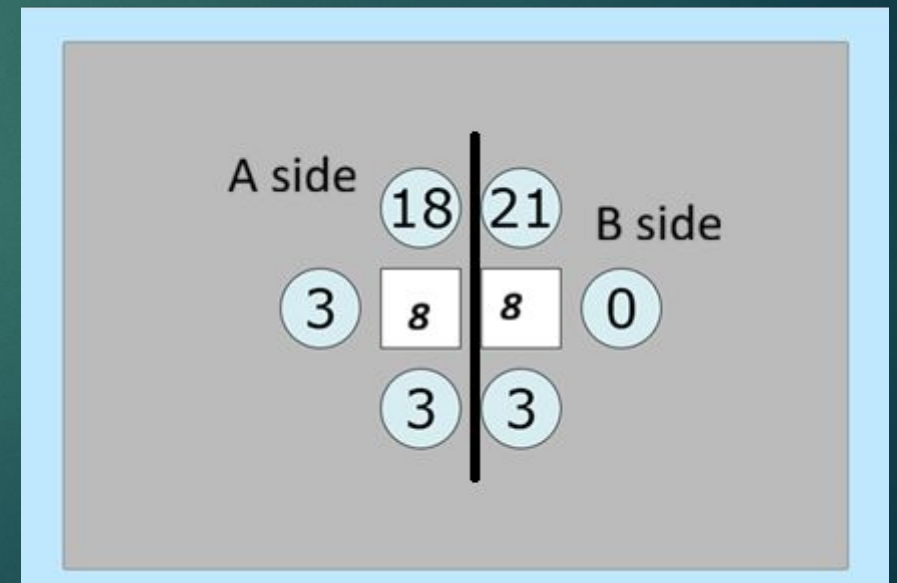
This method is the easiest. This method is the method used to solve anything x 1 grid. But this method does provide the final answer, but you might have to change the identified final numbers to get the answer.

Now we can start solving the problem. The problem we are going to solve is given below.

First we have to solve the A side. But to find the A side we need to find the other side which is B. All we know about A side is that the sum of the NOS surrounding it is equal to 24. We know that A has to be divisible by 4 and the Nos surrounding B is equal to 24 and B has to be also divisible by 4. Now we have to assume that B is equal to the next closest multiple of 4. But to add 4 we need to keep A as 4.

Then the numbers surrounding B will be 28. That is the only way the sum of B can be equal to 28 then B has to be 7.

But the sum around A is not proper so we go to the next multiple of 4 then we must also change A by 4. the sum around B is equal to 32 then the average is 8 for B and A and the answer is correct.



Formula method

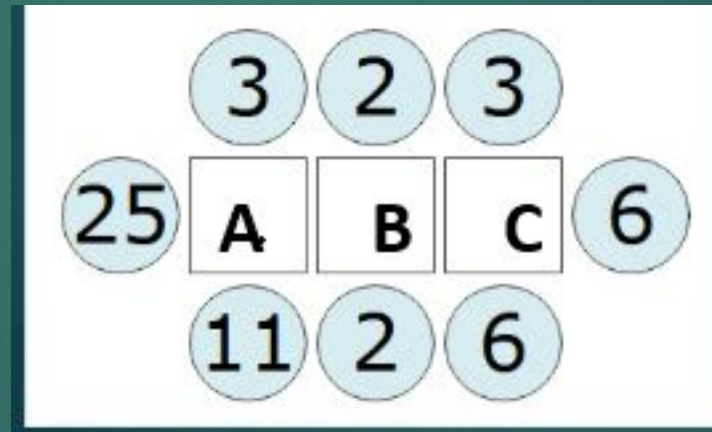
There is a formula which will work every time . The formula is $\text{sum of A side} \times 4 + \text{sum of B side} / \text{by } 15 = A$. Then we can find B the same way we found in the 1x1 Grid.

This works because we have to find the average of A. We multiply A side by 4 because A side /4 should be=A. Then we have to add B side because A is a number which surrounds B. Then we divide by 15 because it is the mean we are trying to find.

1x3 Grid

Steps:

1. First, we can divide the three questions and given them names for convenience. First box is A, second box is B and third box is c.



2. There are actually two approaches for this problem from now.

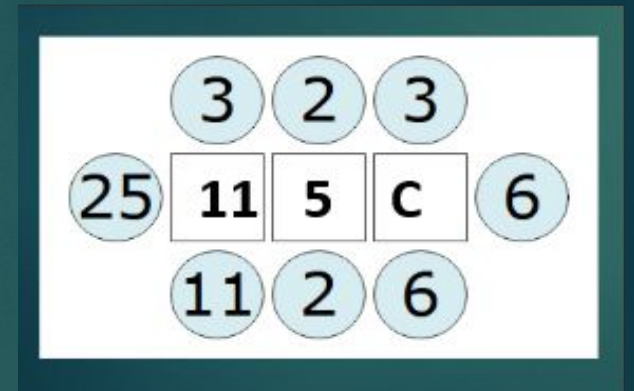
Approach 1:

Now that we have divided into A, B and C, we can now begin solving A.

In this case, if we add up the three numbers $(25+11+3)$ surrounding A, we get 39. Now, we need to find the 4th number to find A. The 4th number has to be also applicable for B.

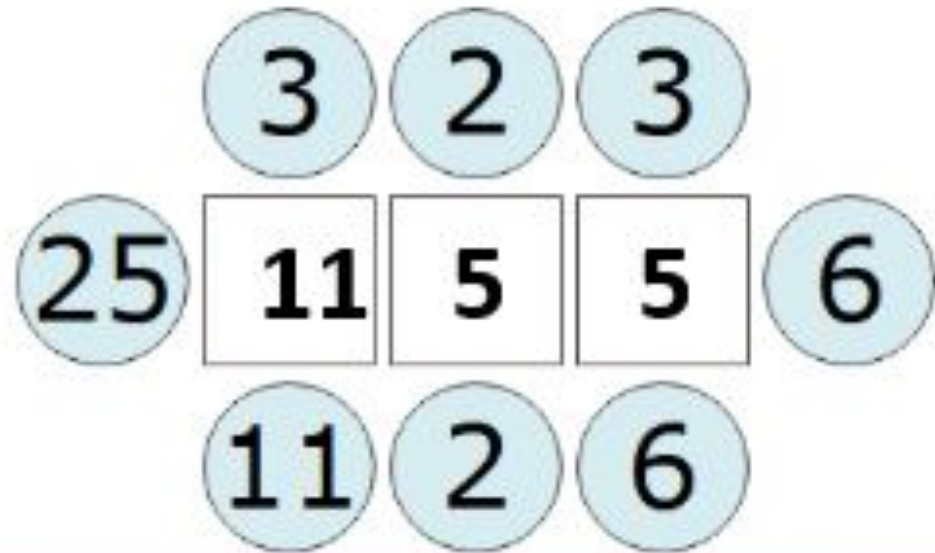
In B's case, we do not have 4 numbers. We have only 2 numbers. But we add both the numbers itself. In this case, the added 2 numbers are $(2+2)$, which is equal to 4.

Now, we find the closest multiple of 4 from the three numbers surrounding A. which in this case is 40. To get 40, we need to keep B as 1. But if B is 2, then A will be 10. So B's average would be incorrect. In this case we have to find the next closest multiple of 4, which in this case is 44. To get 44, we have to keep B as 5. Then the 3 numbers surrounding B will be correct. And hence B will also be correct.



To find out C, we can just add the numbers surrounding it and divide it by 4 to get its mean. If the C's mean has a decimal point, it means that it is wrong.

In this case, we have to add $5+3+6+6$, and divide by 4, which is equal to 5. This means C is 5.



Approach 2:

This is same as approach 1, except we go from C to A. We can use this approach, when the sum of the numbers surrounding C are less than the sum of the numbers surrounding A.

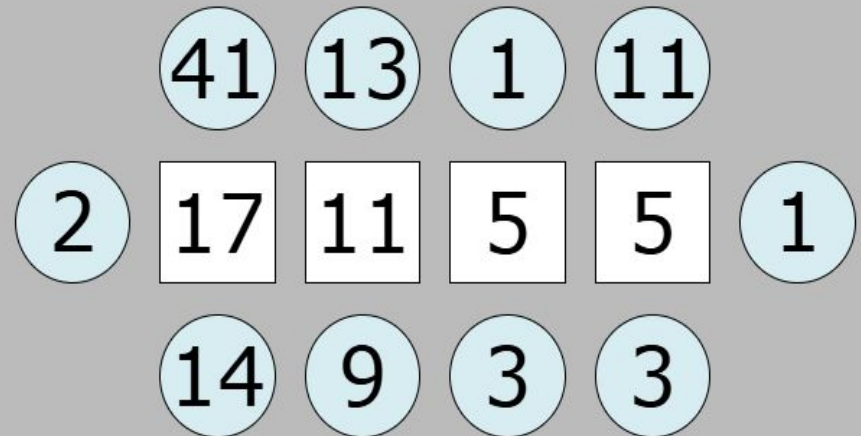
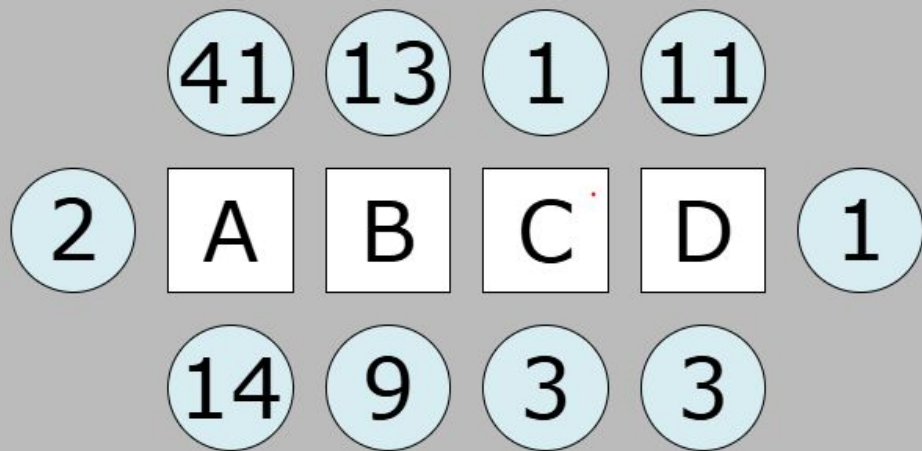
Like, this problem would be much easier with approach 2. But we do not need to learn this way, as we can approach 1, and still get the same answer and reverse.

1X4 Grid

This puzzle can be done using the same method but also has another variable D to solve.

There is another way to solve the problem:

1. Add the numbers surrounding either A or D. Find the sum which is smaller and start from that side. [D in this case as its sum is smaller when compared with the sum of A (Sum of $A=57 > D=15$)].
2. We multiply the smaller sum by 4 because that is the first step in formula method. [In this case we got $(15 \times 4 = 60)$]
3. We then take the letter adjacent to the alphabet we chose [in this case it is C] , and add the numbers surrounding it $[1+3=4]$.
4. We then add the answer of step 3 and step 2. [In this case we get 64 $(60+4=64)$]
5. We then find the closest multiple of 15 and subtract the result of step 4 from it.[closest multiple of 15 for 64 is 75. $75-64=11$] This is the answer for B here. If we chose A side then this would have been the answer for C.
6. Now that we know B we can use the formula method of 1x2 grid to find C and D. And A can be found using 1x1 grid method.



1X5 Grid

This puzzle uses the same method explained for 1x4 grid and has 5 variables to solve:

Explaining the approach used here:

1. Add the numbers surrounding either A or E. Find the sum which is smaller and start from that side. [A in this case as its sum is smaller when compared with the sum of E (Sum of A=15<E=288)].
2. We multiply the smaller sum by 4 because that is the first step in formula method. [In this case we got (15x4=60)]
3. We then take the letter adjacent to the alphabet we chose [in this case it is B] , and add the numbers surrounding it [4+3=7].
4. We then add the answer of step 3 and step 2. [In this case we get 67 (60+7=67)]
5. We then find the closest multiple of 15 and subtract the result of step 4 from it.[closest multiple of 15 for 67 is 75. 75-67=8] This is the answer for C here. If we chose E side then this would have been the answer for C.
6. Now that we know C we can use the formula method of 1x2 grid to find A and B ,D and E.

