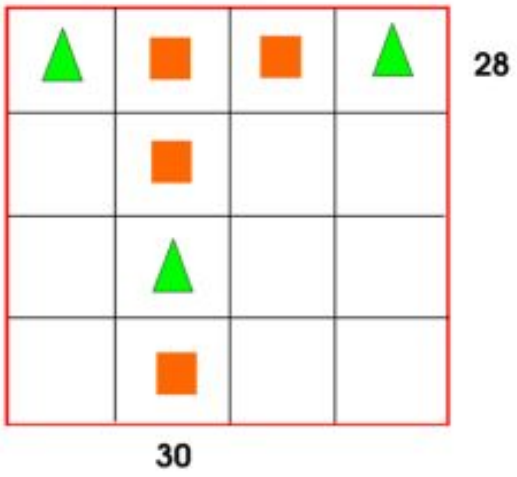
The Problem

Method 1



By Prinn and Utkarsh
Step:1
Look at the top row you would see 2 triangles and 2 squares which is equal to 28.

Step 2 There is another row from the top to bottom the only difference is their as 3 squares and one triangle which is equal to 30.

Step 3 The difference between the square and the triangle is 2. So now we do trial and error. We know if the squares were worth 10 the triangle would be worth 8 and that would equal to much. So we knew 9 was to much too so we tried 8 and 6 and it was perfect. So the square is worth 8 and the triangle is worth 6.

The other way

Step 1:
Form an equation with the 2 rows in the square. Write the square as x and the triangle as y. 2x+2y=28 and 3x+y=30

Step 2:
Make an equation with the 2 equations already formed.
2x+2y+2=3x+y (We do 2x+2y+2 as 30 is 2 more than 28)

Simplify the equation.

x+y=2y+2
x-y=2
x=y+2

Step 3:
You then substitute this into one of the 2 earlier equations.
tion for the 2 rows on the screen. Have x as squares and y as triangles. 2x
3y+6+y=30
4y+6=30
4y=24
y=6
Or

2y+4+2y=28
4y+4=28
4y=24
y=6

Step 4:
Then you substitute this into the equation for how much x is worth

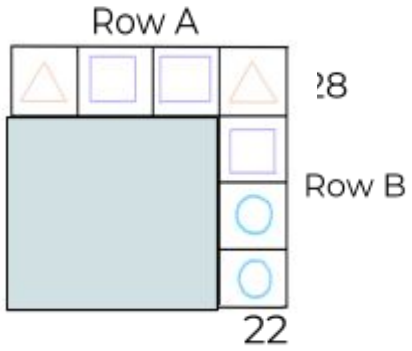
x=6+2=8

Ans. Square = 8 Triangle = 6

You can substitute this into any equation and it work

Method 2

Let's say the top row is 'row A' and the side row is 'row B'



Answer- 1 circle = 4

STEP 1- If we take a look at Row A, you can see that it consists of two triangles, two squares and the total is 28; therefore, we can give the equation for Row A as 2 triangle + 2 square = 28

STEP 2**-** If we simplify the equation, we get triangle + square = 14.

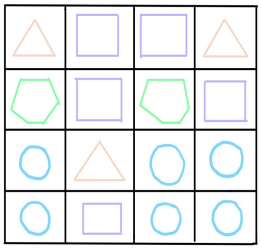
STEP 3- Now if we take a look at Row B, we can see that it consists of a triangle, a square, 2 circles and the total is 22. Since we know that a triangle + square = 14, we can subtract it by 22 to find out the sum of 2 circles: (22-14) = 2 circles= 8 = 2 circles; therefore, 1 circle = 4

- Krista

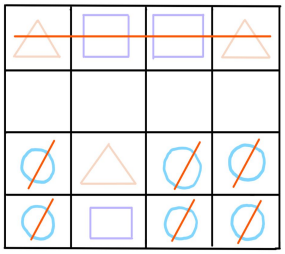
Method 3

By: Tuna, Jenny, Dana, Kayne, Angel & Tiger
(Trial and Error happens during the process)

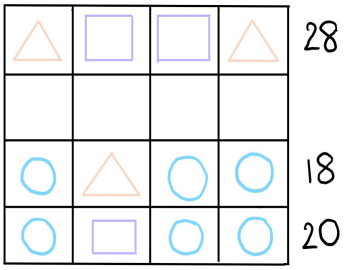
Photo of Nrich problem:



Step 1: Firstly, ignore the top row as well as the circles since it is not important at this stage.



Step 2: Look at the difference between the two numbers as well as the shapes. The difference between the triangle and the square is two as the difference between the numbers is two.



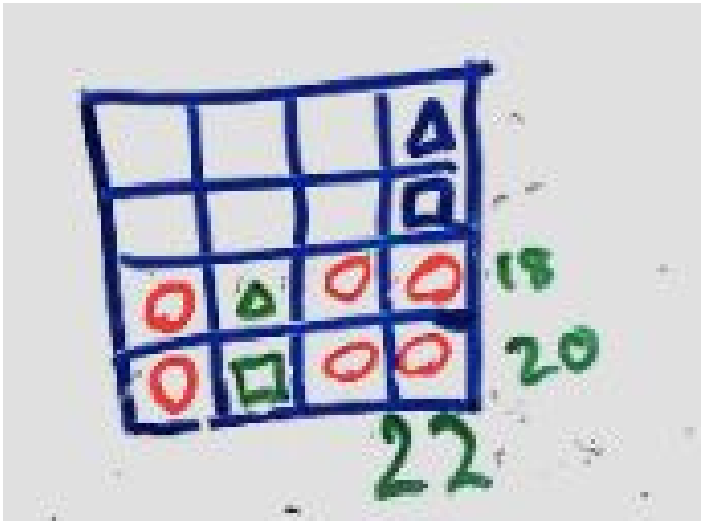
Step 3: After that, you just look at the top row and do trial and error

Step 4: After you find all of the shapes values you can add all of the values together and find the value of the question mark.

Circle = 4
Triangle = 6
Square = 8
Hexagon = 7
? = 21

Meth od 4

Amy S. Brettel, Cody L. Finnegan, Holly Myers, *Jomei A. Greensall,* JAYDEN. K. TAN, Aira K. Ganesh



Step 1:

Look at the circles in one row. There are 3 circles, and next to it has 18 so the ***3 circles have to be less than 5*** or else it will add up to higher than 18.

Step 2:

So, if 3 circles and a triangle is 18 and 3 circles and a square is 20 we can find out, by simplifying the circles down. Then, we know that ***Triangle + 2 = Square.***

Step 3:

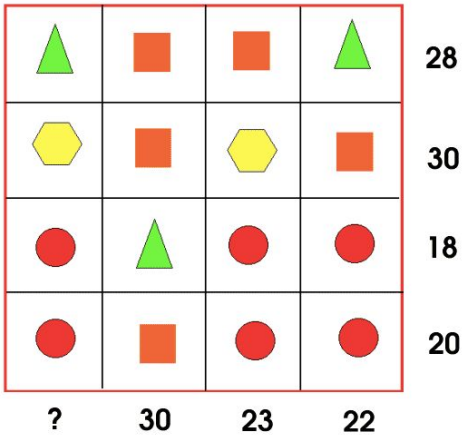
We did trial and error to get the circles, which is 4 and with that information, we did 20-12=8 so the ***square is 8*** and then we did 18-12=6 so the ***triangle is 6.***

Step 4:

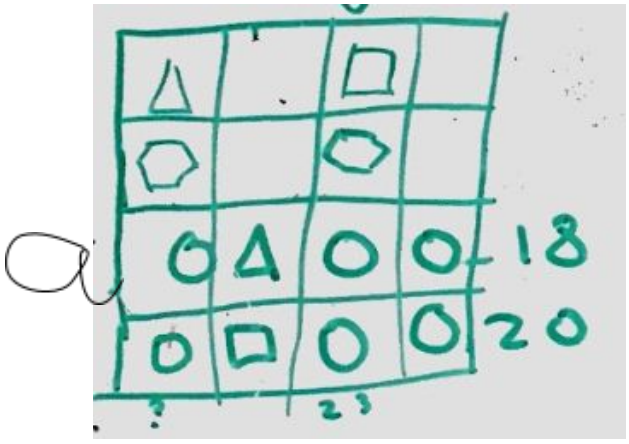
We looked at this photo there is 1 square and 1 triangle and 2 circles as you can see. So we know the square is 8 the triangle is 6 and we know that the circle is 4 so if we get all the numbers and add them together and add the 4 twice because there is 2 circle we get 22.

Step 5:

In step 5 you can see that there is also a hexagon which all we did was get out the square times it by 2 then minus it by 30 to get the hexagon which is 7.



Method 5 by Palak and Armaan



1. Since we know that 3 circles and one square adds up to 20 and 3 circles and a triangle adds up to 18. We can tell that the difference between the square and the triangle is 2 because 3 circles have to equal the same amount.

2. So now we need to subtract 2 to section so that we know how much one circle is worth. 18-2=16 16:-4=4 that means the value of the circle is 4. 4x3=12 18-12=6 20-12=8

Circle = 4
Triangle = 6
Square = *8*
Hexagon = *7*

3. Since we know the value of most of the shapes we can now find out how much the hexagon is worth. 2 circles is equal to 8 and 1 square is equal to 8 8+8=16 23-16=7

4. Since now we know what each shape is worth we can add the final column and find out what the question mark is. triangle+hexagon+circle+circle=21

Method 6

				28
				30
				19
				20
?	30	23	22	

				28
				30
				19
				20
?	30	23	22	

There is a way to find ? only by looking at the totals. The total of the totals added vertically and the total of the totals added horizontally is technically adding every shapes on the table.

(28+30+19+20=22+23+30+?) This is because order doesn't matter for example 4+2+2 is the same as 2+4+2. Such as, first row + second row + third row + fourth row is the same as first column + second column + third column + fourth row.

Total vertically = 28+30+19+20=97

Total horizontally = 30+23+22+?=75+?

This means that ? is: 97 - 75 which is 22.

Therefore, the way to find an answer with method six is to find the total of both vertically and horizontally and subtract it.
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By. Shihyun and Junwoo

Other Methods

First of all, I noticed that all of the rows with circles had the smallest total, so I knew that the circles were the smallest shape. I then looked for rows/columns that were exactly the same except for one variable: one shape. This way I could find the difference in value of some shapes. I found that:

Triangle = Square - 2
Hexagon = Triangle + 1

I also found:

Square + Triangle = Hexagon x 2

Basically hexagon was the average of square and triangle

The sum for the top row was 28 so the average value of the shapes in that row was 7. Using the relationship between square and triangle I figured out that:

Triangle = 6
Square = 8

From that I figured out that:

Hexagon = 7
Circle = 4

Circle + Circle + Hexagon + Triangle = ?

4 + 4 + 7 + 6 = 21

? = 21