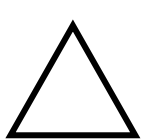


# Solution to Lettergate

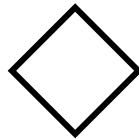
By Justin Marks

This puzzle started out as a homage to a logic exam I took while looking for full time college after college. The basic idea is that you need to figure out what transformation each “lettergate” does. I put the “Y” line in to let everyone know that inputs are never changed by wires. The first gate that should be solved is the diamond  $D(D(I)) = O$ . Starting with the assumption that this is a linear transform, we can assume that the diamond gate adds 3 to the input. Applying this function to the 2nd set of gates, we can determine that the square subtracts one from the input. Next you can solve for the circle in gate 2 or the triangle in gate 4. Solving for the triangle leads you to assume that it’s (+3) which we will later find to be incorrect. Solving for the circle leads you to the circle doubling the input. We can now solve for the star in gate 4 which turns out to be divide by 3. The cross in gate 1 can then be determined to take the average and finally you can validate the triangle on gate 5 which shows it to be +2. Since it can’t be +2 and +3, something must be wrong. Maybe this is not linear? Any other ideas? How about choosing the next vowel? I know, I know... I suck!

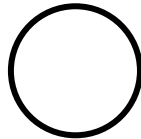
Now you can turn to the next page of the puzzle and figure out that the input “Cooking Spice” gives the output “Edible Orchid”. Either by searching or knowing some culinary trivia, the only edible orchid that’s also a cooking spice is **VANILLA** and is the final answer.



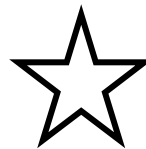
Take the next vowel



+3



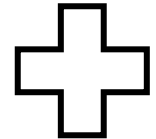
\*2



/3



-1



Take the average/  
middle letter of  
the two inputs

