Heuristics

4) Name : number pair with zero and goal of one (Heuristic 4)
English description: if the goal is one, there is a zero in the numbers, and their is a pair in the numbers, then divide the pair of numbers and add it to the product that is made by multiplying the rest by zero.
Pseudocode : if ((the goal is one) and (zero is among the numbers) and (pair is in the numbers)) then [divide the pairs and add that quotient to the product of multiplying everything else by zero]
Examples :
Numbers → numbers = {7,8,2,8,0}   goal = 1
Solution → ((8 / 8) + (0 * (7 * 2)))

Numbers → numbers = {7,5,5,2,0}   goal = 1
Solution → ((5 / 5) + (0 * (7 * 2)))

Numbers → numbers = {4,2,0,3,3}   goal = 1
Solution → ((3 / 3) + (0 * (4 * 2)))

5) Name : adding one
English description : if the goal is one more than the number in the numbers, and there is a zero and a pair in the numbers, then divide the pair of numbers add it to the number one less than the goal. Take this sum and add it to the product that is made by multiplying the rest by zero.
Pseudocode : if ((the goal is one more than the number in the numbers) and (a zero is among the numbers) and (pair is in the numbers)) then [divide the pair of numbers add it to the number one less than the goal. Take this sum and add it to the product that is made by multiplying the rest by zero.]
Examples:
Numbers → numbers = {6,0,1,2,3}   goal = 7
Solution → ((6 + 1) + (0 * (2 * 3)))

Numbers → numbers = {2,01,6,4}   goal = 5
Solution → ((4 + 1) + (0 * (2 * 6)))

Numbers → numbers = {3,0,1,6,4}   goal = 7
Solution → ((6 + 1) + (0 * (3 * 4)))

6) Name: two plus two equals...
English description : if there is a pair of twos, a zero, and a number that is greater than the goal by four, then add the twos and subtract the sum of the twos from the number that is greater than the goal by four. Add the result to the product that is made by multiplying the rest by zero.
Pseudocode : if ((the goal is four less than the number in the numbers) and (a zero is among the numbers) and (a pairs of twos in the numbers)) then [add the twos and subtract the sum of the twos from the number that is greater than the goal by four. Add the result to the product that is made by multiplying the rest by zero.]

Examples:
Numbers → numbers = {8,5,2,2,0}, goal = 4
Solution → ((8 - (2 + 2)) + (0 * 5)).

Numbers → numbers = {9,0,3,2,2}, goal = 5
Solution → ((9 - (2 + 2)) + (0 * 3)).

Numbers → numbers = {7,0,4,2,2)}, goal = 3
Solution → ((7 - (2 + 2)) + (0 * 4)).

7) Name: numbers 2 times the goal
English description : if there is a two, and a zero in the numbers and a number in the numbers is two times more than the goal, then divide the number that is two times greater than the goal and add it to the product of multiplying zero to the rest of the numbers.

Pseudocode : if ((zero is in the numbers), (there are two in the numbers), and (goal is 2 times less than a number in the numbers), then [divide the number that is two times greater than the goal and add it to the product of multiplying zero to the rest of the numbers.])

Examples:
Numbers → numbers = {5,0,6,4,2}, goal = 3
Solution → ((6 / 2) + (0 * (5 * 4)))

Numbers → numbers = {5,0,6,8,2}, goal = 4
Solution → ((8 / 2) + (0 * (5 * 6)))

Numbers → numbers = {6,0,4,2,2}, goal = 3
Solution → ((6 / 2) + (0 * (4 * 2)))

8) Name: Magic number seven from two twos

English description : if there are two twos, a zero, and a three in the numbers and the goal is seven, then add the two twos to the three and multiply that number by the product of zero times the rest of the numbers.

 Pseudocode : if ((two twos in the numbers), (a 3 in the numbers), (a zero in the numbers), and (the goal is 7), then [add the two twos to the three and multiply that number by the product of zero times the rest of the numbers]

Examples:
Numbers → numbers = {9,0,2,2,3}, goal = 7.
Solution → (((2 + 2) + 3) + (0 * 9))

Numbers → numbers = {3,0,3,2,2}, goal = 7.
Solution → (((2 + 2) + 3) + (0 * 3))

Numbers → numbers = {2,2,3,0,5}, goal = 7.
Solution →   (((2 + 2) + 3) + (0 * 5))