ME617 - Homework 2

Rothanak Chan, Cong Huang

1. The way the candidates are represented as a rotational velocity calculated
2. We use the rotational velocity of the parent, the gear teeth from the parent, and compute a new rotational velocity based on the new gear and joining operation chosen. The new rotational velocity is then used to compute the error based on the given input and output rotational velocity. If the error is less or equal to 2.5%, then the goal is met.

gears = [11,23,31,47,59,71,83,97,109,127]

1. Consider the string as an order of operations, the number representing which gear rom the list it is. M is mate the gears; P is place them in parallel.
   1. The solution for problem 1 is 9M9P8M9P8M9P8M9P4M2 (BF = 5.85)
   2. The solution for problem 2 is 9M9P8M9P8M9M9M7P3M4 (BF = 8.1)
   3. The solution for problem 3 is 9M9P8M9P8M9M7M5P2M0 (BF = 8.46)
   4. The solution for problem 4 is 9M9P8M9P8M9P8M9P0M2 (BF = 5.61)
   5. Does not reach in a timely manner (out of mem)
   6. Does not reach in a timely manner (out of mem)
   7. Discussion: The large and small values will require a lot of pairing of gears that output a ratio that increments towards them. Since DPS looks at very similar gears at first due to the way the tree is structures, this will take a long time to discover anything with high or low output rotational velocities. (High meaning far away from 0 in either direction, low meaning closer to 0)

4. The