

HW 20 Name _____

We have six bodies so there are 15 distances.

1:2, 1:3, 1:4, 1:5, 1:6

2:3, 2:4, 2:5, 2:6

3:4, 3:5, 3:6

4:5, 4:6

5:6

To distinguish between a polytetrahedron, an octahedron, and any other random shape made from six bodies, we could use the total of all distances to differentiate among them. We could then use this to make a running total of all the shapes we get.

Setting the basic connector distances to one, find the following. I want these to be exact answers.

To distinguish between a polytetrahedron, an octahedron, and any other arbitrary shape composed of six bodies, we could use the sum of all distances between body centers to differentiate among them. This would allow us to keep a running total of all the shapes we make on – say 1000 runs.

With the basic connector distances set to one, find the following. I would like exact answers for each.

Total distance of an octahedron _____

Total distance of an polytetrahedron _____

Attach your work.