Entering Inertial Values Using Expressions

It is possible to include any regression equations for the inertia and center of mass because Visual3D allows the user to put expressions into the edit boxes. Consider a typical right thigh segment, which is populated with the default inertial values.

InertiaExpression1.jpg

If the user selects this segment to be a CUSTOM_SEG, the edit boxes can be edited.

InertiaExpression2.jpg

Example: Frustra of Right Cones

For the sake of this example, we will create an expression for the Axial component of the center of mass based on the default computations described elsewhere in the documentation

frustraOfRightCones1.gif

frustraOfRightCones2.png

For convenience create a new Subject Metric X and enter the expression RTH_DISTAL_RADIUS/RTH_PROXIMAL_RADIUS:

InertiaExpression3.jpg

We can then use the Subject Data Metric X that we just created in another expression. Enter the following expression into the Segment Properties Axial edit box:

```
(1+2*X+3*X^2)/4/(1+X+X^2)*RTH_SEG_LENGTH
```

InertiaExpression4.jpg

Note: the edit box doesn't show the entire expression, which is a nuisance