INSERT CP PLOT

Our values for specific heat found using the property calculator are very close to the properties given in Table 5s and follow the same curve. The error between the two curves can be attributed to the error in the tabulated values. When we used the specific heat polynomial expression for air found in Table 3s, the two curves lined up nearly identically.

INSERT TABLES

h u s tables

All three values, internal energy, enthalpy, and entropy increased with temperature. Internal energy and enthalpy grew at a much greater rate than the entropy. This is due to the fact that entropy is given in units of while both enthalpy and internal energy have units of. Entropy is also a function of both temperature and pressure, although this does have a major impact on our results as there is no pressure drop across the turbine??? The error between the values in Table 5s and those found using our property calculator is partially due to the fact that the mixture we used for air is not exactly precise. When we used a more accurate composition for air then just 79% nitrogen and 21% oxygen, our values were closer to those found in the book.

CONCLUSION

From this project we have learned how to use MATLAB to create algorithms to compute properties of ideal gas mixtures based on user inputs. We evaluated how certain thermodynamic properties change due to the temperature drop of our working fluid as it flows through a turbine. The MATLAB code can accept various user imputed molar composition and temperature values, allowing us to determine not only how the temperature change affects our results, but also how changing the gas mixture does as well.

**ANDREW NOTES:**

* Make sure to read the TA’s email he sent out a couple days ago explaining how to format graphs/charts/etc
* Add the Cp plot
* Add table of h, u, and s values compared to the values found in Table 5s
* Edit my results to make sure they match up with what the graph/charts say cuz I typed this before I saw all the results
* See if the highlighted sentence makes sense
* Add this to the memo