

Temp (K) Table:

Altitude in meters	Hand Calc	Matlab	1976 Standard Atmosphere Calculator
2286	273.3	273.301	273.291
10058.4	222.78	222.7804	222.770
12801.6	216.66	216.66	216.650
24384	216.66	216.66	221.034

Pressure (kPa) Table:

Altitude in meters	Hand Calc	Matlab	1976 Standard Atmosphere Calculator (in Pa not kPa)
2286	76.7	76.7064	76712.6
10058.4	26.19	26.1907	26200.8
12801.6	17.03	17.0265	17035.1
24384	2.7	2.7397	2761.48

Density (kg/m³) Table:

Altitude in meters	Hand Calc	Matlab	1976 Standard Atmosphere Calculator
2286	.97	.97779	0.977866
10058.4	.409	.40956	0.409727
12801.6	.274	.27378	0.273920
24384	.044	.044053	0.0435232

There are small discrepancies in the data between the matlab + hand calc answers when compared against the 1976 standard atmosphere calculations. While they are tiny I think they are just caused by the time difference, the starting parameters may have changed slightly.