Problem (Class on Aug. 31, 2009)

Consider water with T = 433˚C and p = 1373 kPa. What is the specific volume in m^3/kg?

From the superheated water tables on page 786 of your textbook:

p (kPa) 1200	
T (˚C)	***v (m^3/kg)***
400	0.25480
500	0.29463

p (kPa) 1400	
T (˚C)	***v (m^3/kg)***
400	0.21787
500	0.25215

By interpolating to a pressure of 1373 kPa and to a temperature of 433˚C the following table can be made. Note that the highlighted cell contains the answer to the question and the underlined and italics cells contain intermediate single interpolation results. Also note that since spreadsheet formulas were used to get these results, lots (about 15) digits were automatically carried through the calculations. So if you took intermediate results and rounded them on your calculator you may get slight differences in the last digit.

p (kPa) 1200			***p (kPa) 1373***			***p (kPa) 1400***	
T (˚C)	***v (m^3/kg)***		***T (˚C)***	***v (m^3/kg)***		***T (˚C)***	***v (m^3/kg)***
400	0.25480		400	*0.22286*		400	0.21787
433	*0.26794*		433	***0.23442***		433	*0.22918*
500	0.29463		500	*0.25788*		500	0.25215