Read the following statements carefully and indicate whether they are true or false. For partial credit, summarize how exactly you arrived at your conclusions.

_____ (25%) An atmosphere whose temperature gradient is 10 °C/km is less stable than when the gradient is 10 °F/1000 ft.

_____ (25%) If the sea-level temperature and pressure are 20 °C and 1 atm and the atmosphere is isothermal, the pressure at 2500 m above sea level exceeds 0.75 atm.

_____ (25%) In a 2x5x6 m family room whose fireplace emits 5 mg/min of NO and whose ventilation rate is 100% per hour, the steady-state NO concentration exceeds 1 mg/m³.

_____ (25%) The Gaussian plume model predicts that the downwind (u=5 m/s) centerline ground-level concentration of a non-absorbable pollutant emitted at 40 g/s and an effective stack height of 130 m, whose cross-wind and vertical dispersion coefficients are 287 and 89 m, will exceed 0.03 mg/m³.