The Raman spectra of aqueous ammonia solutions have been obtained between -40°C and 25°C. The Raman spectrum of neat water was also obtained at 25°C and is characterized by two broad peaks observed at 3200 and 3400 cm⁻¹. The spectrum due to water is subtracted to determine the NH₃ spectrum at all temperatures. In ammonia-water solutions, the spectrum shows three features at measured displacements of 3250, 3316, and 3400 cm⁻¹. The feature at 3316 cm⁻¹ is assigned to the $Q$ branch of the symmetric stretch. The broad, weak features at 3250 and 3400 cm⁻¹, previously assigned to rotational bands, are assigned to combination band. The NH₃ combination bands are assigned by comparing with sum frequency generation (SFG) experiments, monitoring changes with temperature, and analyzing the polarization data. The rotational structure of the $Q$ band is also discussed. As the temperature is lowered from 25 to -40°C, an increase in the Raman intensity is observed for all bands. The relative Raman scattering cross section is determined from the numerically integrated area of the NH₃ $Q$ branch at each temperature.