ESCI 340 – Physical Meteorology
Answers to Selected Exercises for Cloud Physics Lesson 4

1. A droplet of initial radius $R_0$ is at the base of a cloud ($z = 0$) having a liquid water content of $M$ and a steady updraft speed of $U$. The terminal velocity of the drop is given by $u = a R$ where $a$ is a constant.

c. If the initial droplet radius is 40 $\mu$m in a cloud with a liquid water content of 1.5 g/m$^3$, and the updraft velocity is 2 m/s, what will be the radius of the droplet at the top of its trajectory? **Answer:** 0.25 mm

d. What is the maximum height that the droplet will reach, assuming collection efficiency of 1? **Answer:** 660 m