

63. (a) Eq. 38-33 yields

$$v = \frac{\Delta\lambda}{\lambda} c = \left(\frac{462 - 434}{434} \right) c = 0.065c$$

or $v = 1.93 \times 10^7$ m/s.

(b) Since it is shifted “towards the red” (towards longer wavelengths) then the galaxy is moving away from us (receding).