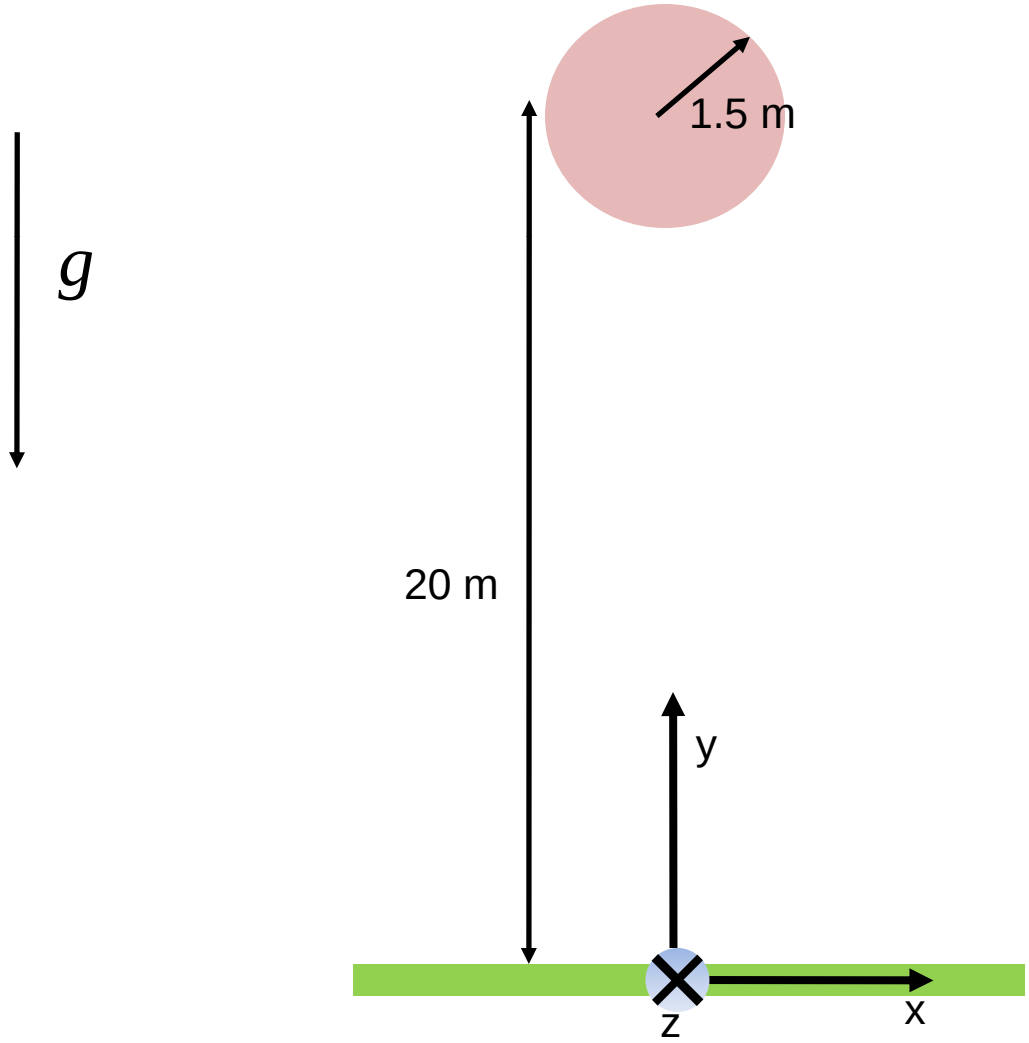
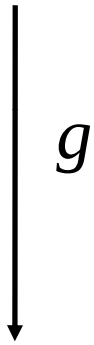
# Bouncing Ball: Free Fall

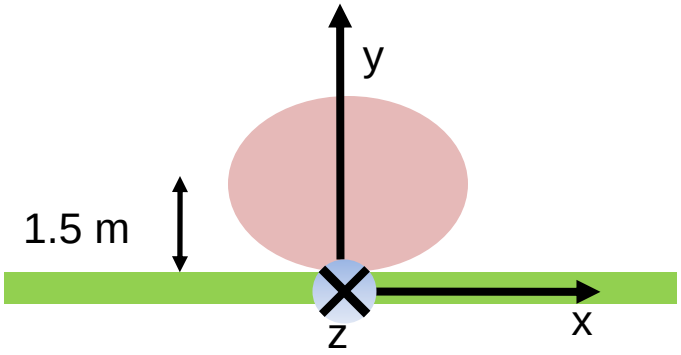



***Free Fall Equation***

$$\ddot{y} = -g$$

# Bouncing Ball: Collision




***Collision Equation***

$$y < 1.5$$

$$\ddot{y} = K(1.5 - y) - g$$

***Volume Conservation***

$$\frac{4}{3}\pi r^3 = \frac{4}{3}\pi abc$$

*if a=b=, and c=y, then*

$$a = \sqrt{\frac{r^3}{y}}$$