

$$\ddot{y}_1 = \frac{y_3 - y_1}{r_{13}^3} + \frac{y_2 - y_1}{r_{12}^3}$$

$$> \frac{y_3 - y_1}{r_{12}^3} + \frac{y_2 - y_1}{r_{12}^3}$$

$$= \frac{-3y_1}{r_{12}^3} > 0$$