

56-57 45° GIVES THE GREATEST HORIZONTAL DISTANCE

\Rightarrow HORIZONTAL DISTANCE DECREASES WHEN LAUNCHED

AT $60^\circ \equiv 60^\circ$ GIVES HIGHER HEIGHT. TIME OF FLIGHT IS BASED ON HEIGHT \Rightarrow TIME IN AIR INCREASES

58-59

$$F_g = \frac{G m_1 m_2}{r^2}$$

$$= \left(6.67 \times 10^{-11} \frac{\text{N} \cdot \text{m}^2}{\text{kg}^2} \right) \left(5.98 \times 10^{24} \text{ kg} \right) \left(7.35 \times 10^{22} \text{ kg} \right)$$

$$\frac{\hspace{10em}}{\left(3.84 \times 10^8 \text{ m} \right)^2}$$

$$= 1.99 \times 10^{20} \text{ N}$$