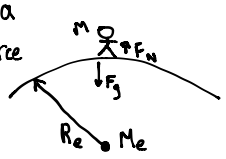
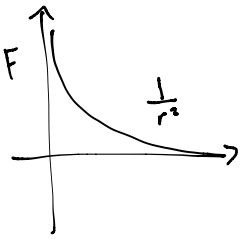
Point object

$F_g = \frac{G m_1 \cdot m_2}{r^2}$ (G: gravitation constant)

$W = ma$

Weight → Force





$F_g \propto m_1 m_2$

$F_g \propto \frac{1}{r^2}$ (Inverse Square Law Force)

$F_g = \frac{G M_e}{R_e^2}$

3rd Law

Forces come in pairs

Given

Find a) a_y

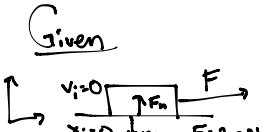
Solve a) $\sum F_y = ma_y$

$F_n - mg = ma_y$

$F_n - mg = 0$

$F_n = mg$

Given



Find a) a_x

Solve a) $\sum F_x = ma_x$

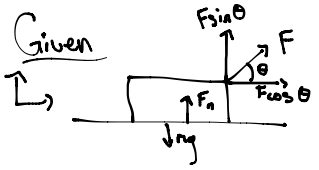
$F = ma_x$

$a_x = \frac{F}{m}$

$a_x = \frac{2.0\ N}{1.0\ kg}$

$a_x = 2.0\ m/s^2$

Given



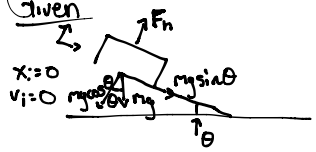
Find a) $\sum F_y$, F b) a_x

Solve a) $\sum F_y = ma_y$ ($a_y = 0$)

$F_N + F\sin\theta - mg = ma_y$ ($a_y = 0$)

$F_N = mg - F\sin\theta$

Given



Find a) F_n b) a_x

Solve a) $\sum F_y = ma_y$ $a_y = 0$ b) $\sum F_x = ma_x$

$F_n - mg\cos\theta = 0$

$F_n = mg\cos\theta$

$mg\sin\theta = ma_x$

$a_x = g\sin\theta$