$$\text{Work} \quad = \quad \int \vec{F} \cdot \vec{dx} \quad = \quad F\cos(\theta) \int dx$$

$$\text{Work} \quad = \quad \int \vec{F} \cdot \vec{dx} \quad = \quad F \int dx$$

$$\text{Work} \quad = \quad \int \vec{F} \cdot \vec{dx} \quad = \quad \pm \int F dx$$

$$\text{Work} \ = Fd$$

$$F_g = mg$$

$$F_g = \frac{GM_1M_2}{r^2}$$

$$\text{Work by gravity} \ = \int_{R_E}^{R_E+H} \left(\frac{GM_Em_F}{x^2} \ \ (-\hat{i}) \right) \cdot \left(dx \ \ \hat{i} \right)$$

$$\text{Work by Joe} \ = \int_{R_E}^{R_E+H} \left(\frac{GM_Em_F}{x^2} \ \ (\hat{i}) \right) \cdot \left(dx \ \ \hat{i} \right)$$

$$\text{Work} \ = \int F \, dx$$

$$\text{Work} \ = \int \vec{F} \cdot \vec{dx}$$

$$\text{Force} \quad = \quad 500\text{N} \ \hat{i} \ \ -200\text{N} \ \hat{j} \ \ -100\text{N} \ \hat{k}$$