$$\text{Work } = Fd$$

$$F_g = mg$$

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

$$F_g = \frac{G\,M_E\,m}{{R_E}^2}$$

$$G = \frac{F_g\,r^2}{M_1M_2}$$

$$g = \frac{GM_E}{{R_E}^2}$$

$$M_E = \frac{g\,{R_E}^2}{G}$$

$$\text{Work } = \int_{R_1}^{R_2} \frac{GM_1M_2}{r^2} dr$$

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

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