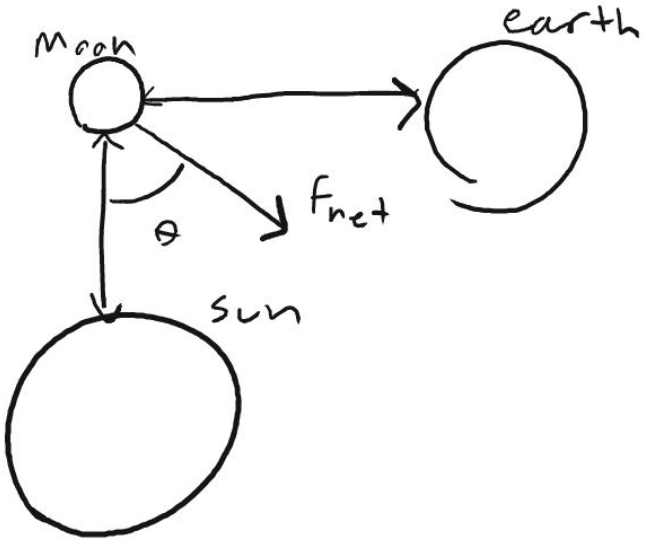
P) Find F_{net} on the Moon [N]

R)



O) $r_{mE} = 3.84 \times 10^8 m$ $m_E = 5.98 \times 10^{24} kg$

$r_{ms} = 1.5124 \times 10^{11} m$ $m_m = 7.35 \times 10^{22} kg$

$m_s = 1.99 \times 10^{30} kg$

$F_g = G \frac{m_1 m_2}{r^2}$ $G = 6.67 \times 10^{-11} \frac{N \cdot m^2}{kg}$

C) $F_{gme} = \frac{6.67 \times 10^{-11} (7.35 \times 10^{22} kg)(5.98 \times 10^{24} kg)}{(3.84 \times 10^8 m)^2}$

$F_{gme} = 1.99 \times 10^{20} N$

$F_{gms} = \frac{6.67 \times 10^{-11} (7.35 \times 10^{22} kg)(1.99 \times 10^{30} kg)}{(1.5124 \times 10^{11} m)^2}$

$F_{gms} = 4.22 \times 10^{25} N$

$F_{net} = \sqrt{(4.22 \times 10^{25} N)^2 + (1.99 \times 10^{20} N)^2}$

$F_{net} = 4.67 \times 10^{20} N$

c)

$$\theta = \tan^{-1}\left(\frac{1.99 \times 10^{20}\ N}{4.22 \times 10^{20}\ N}\right)$$

$$\boxed{\theta = 25.3\ deg}$$