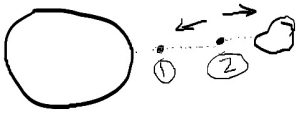
Adam Stammer

Homework Problem #1

$\frac{GM_1M_2}{R^2} \rightarrow U_g = \frac{GM_1M_2}{R}$

$M_E = 6 \times 10^{24}$ $M_m = 7.35 \times 10^{22}$

$M_R = 365kg$



1 KE U_E U_m

2 KE U_E U_m

$$\frac{1}{2}mv^2 + \frac{GM_EM_R}{R} = \frac{GM_EM_R}{R} + \frac{GmmM_R}{R}$$

$$v = \sqrt{\left(2G\left(-\frac{M_E}{R} + \frac{M_E}{R} + \frac{M_m}{R} - \frac{M_m}{R}\right)\right)}$$

700km → 7,481,200km

346019

Radius found in previous homework

$v \approx 2{,}000{,}000$ km/s

Way too fast!

And my equation doesn't account for the mass of the rocket (it canceled out) when it very much should!

Adam Stammer Homework Problem 3

Assuming rock of mass 1kg.

$$\frac{1}{2}mv^2 = \frac{GM_m M_R}{R}$$ ← As the distance sought increases, the velocity needed decreases? I don't think so.

$$\frac{1}{2}(1)v^2 = \frac{G7.35\times10^{22}\times1}{38381}$$

$$V = \sqrt{\frac{2G7.35\times10^{22}}{38381}}$$ ← I'm missing something here.

$$V = 15874.0876$$

$$\approx 15874 km/s$$

That seems very very fast to me.