

ΤΡ 3.3.21

B+2

76 62.197

$$\begin{aligned} g &= i \\ h &= R \\ R &= 6400 \text{ km} \\ g_0 &= 10 \text{ m/s}^2 \end{aligned}$$



$$\begin{aligned} g &= G \frac{M}{r^2} = G \frac{M}{(R+h)^2} = G \frac{M}{(R+R)^2} = G \frac{M}{(2R)^2} = \\ &= \frac{GM}{4R^2} = \frac{g_0}{4} = \frac{10}{4} = 2.5 \text{ m/s}^2 \end{aligned}$$

Πόσο g θίνεται οι αεραπόλυτοι
200 Αεροπλάνα Α-6000000 ΣΤΑΤΙΣΤΙΚΑ
(I.S.S.)

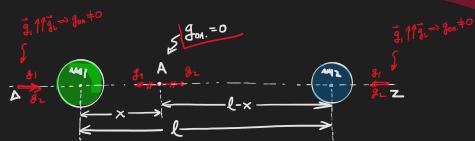
$$g_{ISS} = G \frac{M}{(R+h)^2} = \frac{g_0 R^2}{(R+h)^2} = \frac{10 \cdot 6400000^2}{(6400000+400)^2} = 9.998 \frac{\text{m}}{\text{s}^2}$$

$$g_0 = G \frac{M}{R^2} \Rightarrow GM = g_0 R^2$$

και $g_{ISS} \approx g_0$ η-21
οι αεραπόλυτοι αεραπόλυτοι

82 62.198

$$\begin{aligned} m_1 &= m \\ m_2 &= 2m \\ l & \\ x &= j, g_{tot} = 0 \\ V(x) &= j \\ G & \end{aligned}$$



$$\begin{aligned} \Sigma_{to} A : g_{tot} = 0 \Rightarrow g_1 = g_2 \Rightarrow G \frac{m_1}{x^2} &= G \frac{m_2}{(l-x)^2} \Rightarrow \\ \Rightarrow \frac{m}{x^2} &= \frac{2m}{(l-x)^2} \Rightarrow 2x^2 = (l-x)^2 \Rightarrow \end{aligned}$$

$$\begin{aligned} \sqrt{2} \cdot x &= \pm (l-x) \Rightarrow \sqrt{2}x = l-x \Rightarrow \sqrt{2}x + x = l \Rightarrow (\sqrt{2}+1)x = l \Rightarrow x = \frac{l}{\sqrt{2}+1} > 0 \\ \sqrt{2}x &= -(l-x) \Rightarrow \sqrt{2}x = -l+x \Rightarrow \sqrt{2}x - x = -l \Rightarrow (\sqrt{2}-1)x = -l \Rightarrow x = \frac{-l}{\sqrt{2}-1} < 0 \end{aligned}$$

$$\begin{aligned} \sqrt{2}+1 &\approx 2.41 \Rightarrow x = \frac{l}{2.41} < l \leftarrow \text{και αεροπλάνα 6000000 m/s} \\ \sqrt{2}-1 &\approx 0.41 \end{aligned}$$

Δεν είναι
g1 = g2
g1 ≠ g2
λειτουργία

$$\Sigma_{to} A : V_A = V_A^{(m_1)} + V_A^{(m_2)} = -G \frac{m_1}{x} - G \frac{m_2}{l-x} = -G \frac{m}{\frac{l}{\sqrt{2}+1}} - G \frac{2m}{\frac{l}{\sqrt{2}-1}} =$$

$$= -\frac{Gm(\sqrt{2}+1)}{l} - \frac{G \cdot 2m}{\frac{l(\sqrt{2}+1)-l}{\sqrt{2}+1}} = -\frac{Gm(\sqrt{2}+1)}{l} - \frac{G \cdot 2m}{\frac{l\sqrt{2}+l-l}{\sqrt{2}+1}} =$$

$$= -\frac{Gm(\sqrt{2}+1)}{l} \left(1 + \frac{2}{\sqrt{2}} \right) = -\frac{Gm(\sqrt{2}+1)}{l} (1+\sqrt{2}) =$$

$$= -\frac{Gm}{l} (1+\sqrt{2})^2 = -\frac{Gm}{l} (1+2+2\sqrt{2}) \Rightarrow$$

$$\Rightarrow V_A = -\frac{Gm}{l} (3+2\sqrt{2})$$

HW

108, 109

62.204