

AP Physics 1

Gravitation Problem Answers

1.) $F_g = 4.15 \times 10^{23} \text{ N}$

2.) $F_g = 1.52 \times 10^3 \text{ N}$

3.) $g = 1.57 \frac{\text{m}}{\text{s}^2}$

4.) $g = 1.62 \frac{\text{m}}{\text{s}^2}$

5.) $m = 3.2 \times 10^{23} \text{ kg}$

6.) a.) $F_2 = 2F_1$

b.) $F_2 = \frac{1}{4}F_1$

c.) $F_2 = 4F_1$

d.) $F_2 = 16F_1$

7.) a.) $T = 118 \text{ min}$

b.) $v = 1632 \frac{\text{m}}{\text{s}}$

8.) $g = 4.35 \frac{\text{m}}{\text{s}^2}$

9.) $F_g = 244 \text{ N}$

10.) $T = 696 \text{ days}$ or $T = 693 \text{ days}$

11.) $U_G = -3.23 \times 10^{35} \text{ J}$

12.) $W = 5.8 \times 10^8 \text{ J}$

13.) $d = 2.58 \times 10^6 \text{ m}$

14.) $v_2 = 336 \frac{\text{m}}{\text{s}}$