2ND MIDTERM

Physics 171
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Discussion Instructor: Abbott, Allen, Brumbaugh, Bruno, DeSisto, Ho, Koster, Mabud, Sedaghati, Stone, Younger

PROBLEM 1A

(a) An object weighing 125 pounds on earth is taken to the moon. What is its weight on the moon? \( 19 \text{ lbs.} \) \( \frac{m g_{\text{earth}}}{m g_{\text{moon}}} = \frac{\text{weight}_{\text{earth}}}{\text{weight}_{\text{moon}}} \)

(b) A rock is dropped on a small planet. It falls 3.0 m in 2.0 sec. Find \( g \). \( 1.5 \text{ m/s}^2 \) \( \text{(displacement} = \text{velocity}_i t + \frac{1}{2}gt^2) \)

(c) An object weighs 345 pounds. Find its weight in Newtons. \( 1540 \text{ N or } 1.54 \times 10^3 \text{ N} \) \( \text{ (345 x 4.45 N) } \)

(d) An object whose mass is 110 kg is taken to the moon. Find its mass on the moon. \( 110 \text{ kg.} \) \( \text{(Mass is independent of gravitational pull,)} \)

(e) A 100,000 pound coal car on a horizontal track is acted on by a force of 100 pounds. If there is no friction, find its acceleration. \( 3.22 \times 10^{-2} \text{ ft/s}^2 \) \( \text{(Note that the mass is } \frac{1 \times 10^5}{32.2} \text{ slug.)} \)

Total mark = 4509
Total students = 219
Average = \( \frac{4509}{219} \) = 20.59.