

# Physics 231. Mechanics of Solids

Extra Ch. 5 Practice.

Name: \_\_\_\_\_

1. What are the four fundamental forces of nature?
2. A 60 kg woman stands on an elevator (on Earth) as it accelerates upward at 3 m/s/s. What is the force exerted on the woman by the elevator?
3. A 100 kg man stands on an elevator as it accelerates downward at 9.8 m/s/s (weee!). What is the force on the man by the elevator?
4. Newton's first law may appear to be violated by an object if the observer is \_\_\_\_\_
  - (a) exerting a net force
  - (b) accounting for air resistance
  - (c) bouyant
  - (d) in a non-inertial frame of reference
  - (e) in an inertial frame of reference
5. How much does a 5 slug object weigh in pounds? (Note:  $g = 32 \text{ ft s}^{-2}$ .)
6. What is the acceleration of a block down a frictionless ramp which is inclined at  $30^\circ$  to the horizontal?
  - (a) 0 m/s/s
  - (b) 3.26 m/s/s
  - (c) 4.9 m/s/s
  - (d) 9.8 m/s/s
  - (e) not enough information