1. An object, 500 grams, is accelerated at 9.8 m/sec^2. What is the net force on the object?

2. Using your answer to the question above, what is the acceleration of an object that has a mass of 6 x 10^{24} kg? Express your answer in scientific notation.

3. What is the weight of an object that has a mass of 6 x 10^{24} kg? Express your answer in scientific notation.

708 N 4. A passenger of mass 72.2 kg stands on a platform scale in an elevator cab. What does the scale read if the elevator is stationary?

708 N 5. A passenger of mass 72.2 kg stands on a platform scale in an elevator cab. What does the scale read if the elevator moves at a constant velocity?

939 N 6. A passenger of mass 72.2 kg stands on a platform scale in an elevator cab. What does the scale read if the elevator is accelerating upward at 3.2 m/sec^2 ?

477 N 7. A passenger of mass 72.2 kg stands on a platform scale in an elevator cab. What does the scale read if the elevator is downward, acceleration -3.2 m/sec^2 ?

?? 8. A passenger of mass 72.2 kg stands on a platform scale in an elevator cab. What does the scale read if the elevator's cable breaks and the elevator is in free fall?

2452.5 N 9. A person, mass 75 kg, stands in an elevator which is moving upward with an acceleration of 22.9 m/sec^2. What is his "apparent weight," i.e. what is the normal force?

2452.5 N 10. What is the weight of a person, 75 kg, on Jupiter, where $g = 22.9$ m/sec^2?

11. In the problem above, what is the person's weight in pounds?

12. An object with an initial velocity of 1.4 x 10^7 m/sec is stopped in a distance of 1.0 x 10^{-14} m. If the object has a mass of 1.67 x 10^{-27} kg, then what is the magnitude of the force acting on the object?

Honors only 13. A certain force gives a mass m_1 an acceleration of 12.0 m/sec^2 and mass m_2 an acceleration of 3.30 m/sec^2. What acceleration would the force give to an object with a mass of A) $m_2 - m_1$ and B) $m_2 + m_1$?

14. A 52 kg circus performer slides down a rope that breaks if the tension exceeds 425 N. A) What happens if the performer hangs stationary from the rope? B) At what magnitude of acceleration does the performer just avoid breaking the rope?