Planet Holloway - **websheet 4.2**
Cp Physics - Forces and Newton's Laws of Motion
You may print this out and write on it or work on your own paper.
Show all work.

1. An orangutan of 32 kg sits in a 4.8 kg chair. If the orangutan leans back so the chair balances on two legs, what is the support force for each leg?

2. A basket of tropical fruit has a weight of 27 N on earth. A second basket of North American fruit has a weight of 24 N on the moon. What is the mass of each basket? (Hint: the acceleration of gravity on the moon is 1.63 m/s/s).

3. A hedgehog, 0.6 kg, has reached terminal velocity of 6 m/s. What is the force of air resistance on him? What is his acceleration during terminal velocity?

4. A 4 kg cantaloupe and a 16 kg accordion are dropped on the moon (no air resistance). The force of gravity on the accordion is how many times greater than the force of gravity on the cantaloupe? How many times greater is the acceleration of the accordion than that of the cantaloupe?

5. If you drag a sled through the snow at a constant 4 m/s, what is the tension in the cord that pulls the sled if the force of friction is 17 N?

6. You push on a box filled with dentures, 27 kg, with a force of 300 N. If the force of friction is 120 N, what is the resulting acceleration?

Answers:

1. 184 N
2. tropical fruit = 2.7 kg; the north American fruit = 14.7 kg
3. 6 N; zero acceleration
4. 4 times greater on the accordion; 1 times or they have the same acceleration.
5. 17 N
6. 6.67 N