VERTICAL FORCES PROBLEMS

1. A 4500 kg helicopter accelerates upward at 2.0 m/s^2. What lift force is exerted by the air on the propellers?

   (5.3 x 10^4 N)

2. The maximum force a grocery sack can withstand and not rip is 250 N. If 20.0 kg of groceries are lifted from the floor to a table with an acceleration of 5 m/s^2, will the sack hold?

   (No, F_A = 300 N)

3. A person fishing hooks a 2.0 kg fish on a line that can only sustain a maximum of 38 N of force before breaking. At one point while reeling in the fish, it fights back with a force of 40.0 N. What is the minimum acceleration with which he must play out the line during this time in order to keep the line from breaking?

   (-1.0 m/s^2)