Answer on Question #42815, Physics, Mechanics

A lift is filled with patients has a total mass of 2055 kg. As the lift begins to go up, the acceleration is 0.75 m/s2. What is the tension in the rope that is lifting the lift? Validate your solution as well.

Solution

The tention in the rope is equal to force, that is pulling out the lift. Latter can be found as

$$F = m(a + g) = 2055 \cdot (0.75 + 9.8) = 21680.25\, N$$