Answer on Question 75137, Physics, Other

Question:

An elevator of mass $900\ kg$ accelerates upward at $2\ m/s^2$, the tension in the cable where it is attached to the elevator is?

Solution:

We can find the tension in the cable from the Newton's Second Law of Motion:

$$\sum F_y = ma,$$

$$T - mg = ma,$$

$$T = mg + ma = m(g + a) = 900\ kg \cdot \left(10\ \frac{m}{s^2} + 2\ \frac{m}{s^2}\right) = 10800\ N.$$

Answer:

$T = 10800\ N.$