Answer on Question #48629, Physics, Mechanics | Dynamics | Kinematics

A 2.5 kg block is kept on a 3.2 kg block resting on the floor of an elevator. If the elevator is moving up at 1.3 m/s2, calculate the force exerted by the 2.5 kg block on the 3.2 kg block.

By the Second Newton's law (2.5kg):

$$F_{3.2} - mg = ma$$

Where $F_{3.2}$ is a force 3.2 kg block acts on a 2.5kg block

$$F_{3.2} = mg + ma = m(g + a)$$

By the Third Newton's law $F_{3.2} = F_{2.5}$ (values)

So, the force exerted by the 2.5 kg block on the 3.2 kg block:

$$F_{2.5} = m(g + a) = 2.5kg \cdot \left(9.8\frac{m}{s^2} + 1.3\frac{m}{s^2}\right) \approx 28N$$

Answer: $F_{2.5} \approx 28N$