

His acceleration, A , in an inertial frame, his mass, M , and the forces due to gravity, F_{Grav} , and to the floor, F_{floor} , acting on a person in an elevator, are related (by NII) as follows: $MA = F_{\text{Grav}} + F_{\text{floor}}$. If we re-write this equation as:

$$0 = F_{\text{Grav}} + F_{\text{floor}} - MA,$$

1. We add no new physical content to the statement.
2. We have placed the outside world's forces on the same side of the equation as their effect.
3. We can re-interpret the result as the computation of observer, O_A , in a frame accelerating at a rate A , which calculation uses a pseudo-force, and informs him that this person has zero acceleration in O_A 's accelerating frame.

4. All of the above are true and valid completions.

5. None of the above is true.

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The correct answer is #4: All of #1, #2, and #3 are true and valid completions, because

- Under interpretation #3, O_A has added the pseudo-force, $-MA$, to the physical forces, to make the resulting Newton-like calculation yield the correct prediction in his accelerating frame (where NII is not valid); namely, that the person has zero acceleration, and so remains at rest in O_A 's frame.
- Also, #1 and #2 are obviously true, so that #4 is the correct choice.