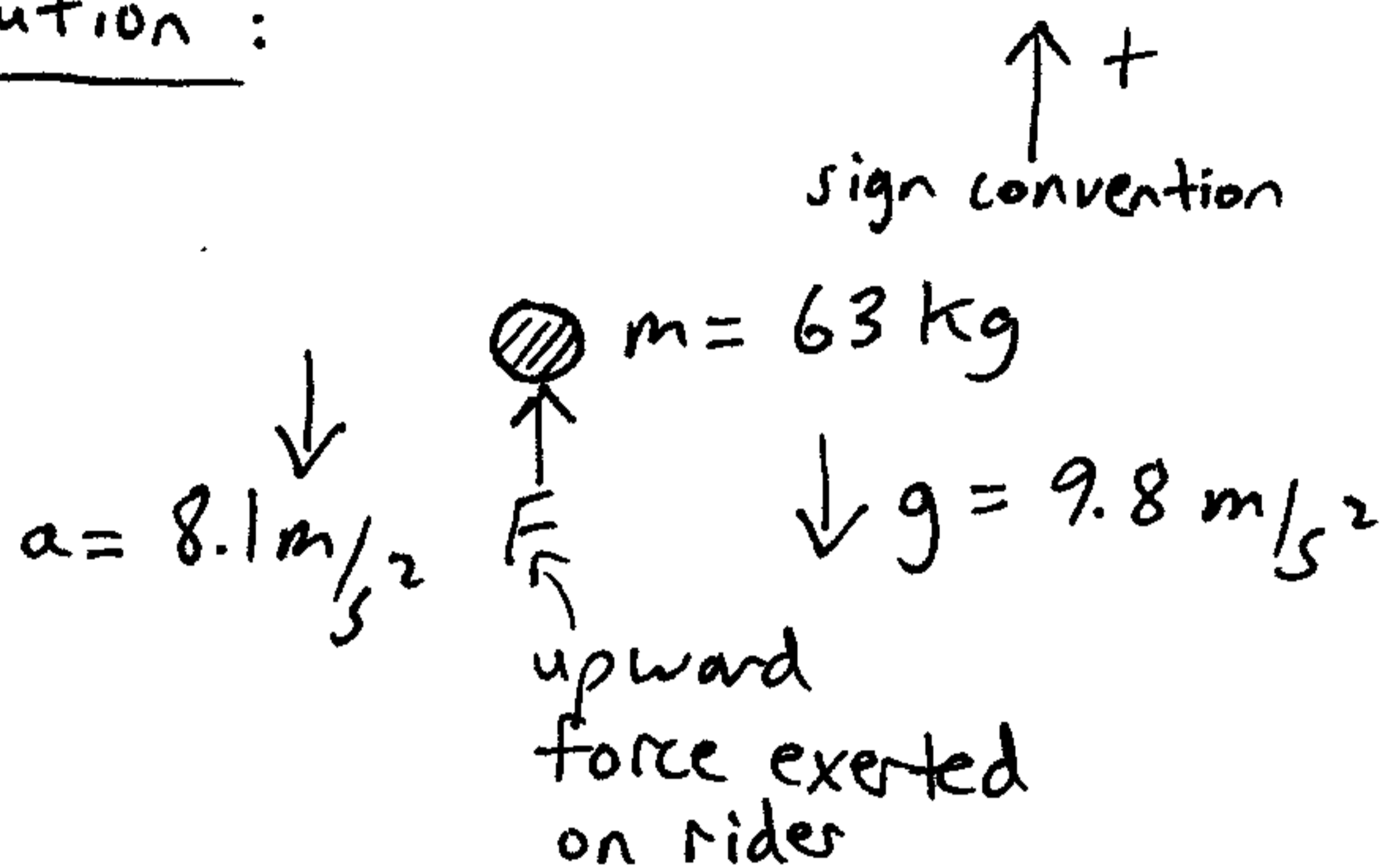


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This is a force and motion problem involving Newton's laws.

At an amusement park, a drop tower falls with an acceleration of 8.1 m/s^2 . What is the upward force exerted on a 63 kg rider?

Solution:



Apply Newton's 2nd law in vertical direction:

$$\sum F = ma$$

$$F_r - mg = m(-a)$$

$$F_r = mg - ma$$

$$F_r = m(g - a) = 63(9.8 - 8.1) = 107.1 \text{ N}$$

(answer)