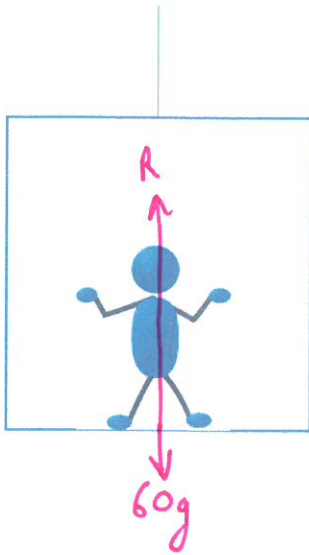## Reaction Forces & Lifts – "Apparent Weight"

Consider a stickman with a mass of 60kg standing in a lift
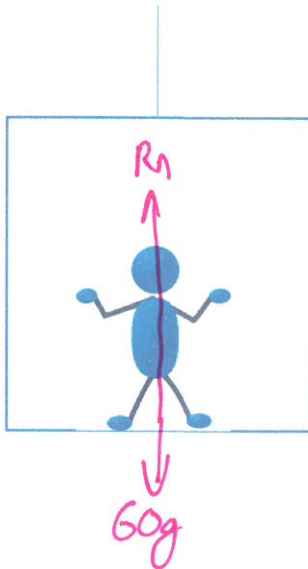
When the lift is stationary (or moving with constant speed):

$R - 60g = 60 \times 0$

$R = 60g + 0$

$R = 588N$

Reaction force = Mans weight
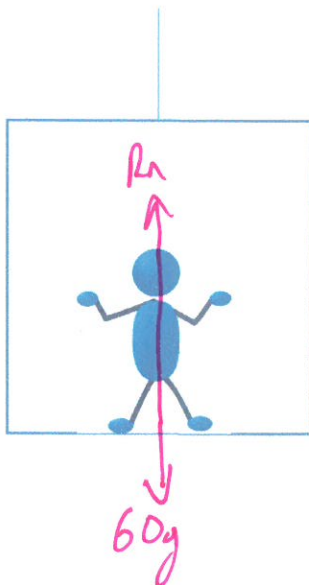
When the lift is *accelerating* upwards @ a ms^{-2}

$R - 60g = 60a$

$R = 60(g + a) = 60g + 60a$

Mans weight → additional force caused by accel

So Man "feels" heavier

When the lift is *decelerating* upwards @ a ms^2

$R - 60g = 60 \times -a$

$R = 60g - 60a$ Mans weight – additional force caused by accel

$= 60(g - a)$

So Man "feels" lighter.