**Answer on Question #68306, Physics / Astronomy | Astrophysics**

When a vehicle is passing through the atmosphere, at some point it may decelerate at a rate of 39.2m/s^2 (away from the center of Earth) while Earth's gravitational pull remains at -9.80m/s^2.
a)In such a situation, what is the apparent weight in gs of an astronaut inside the vehicle?
b)In this situation, is the astronaut in a microgravity situation?

**Solution**

a)

$$a = 39.2\, m/s^2 = 4g$$

From the second Newtons Law we have.

$P - mg = ma.$

Here $m$is mass of astronaut.

The apparent weight is

$$P = m(g + a)$$

Apparent weight in gs is

$$\frac{P}{m} = (g + a) = g + 4g = 5g.$$

b) **Microgravity** is the condition in which people or objects appear to be weightless. Weight of astronaut is 5g. No!

**Answer:**

a)5g

b) No.