Question #30953

A rocket is moving with acceleration 3g.calculat the effective weight of an astronaunt sitting in the rocket when his actual weight is 75 kg

Solution:

The actual weight of the body is

$$P = mg,\ were\ m\ is\ the\ mass\ \ g\ is\ the\ acceleration\ due\ the\ gravity$$

When the rocket is moving with acceleration the effective weight is as sum

$$P_{actual} = P + ma, where\ a\ is\ the\ acceleration\ of\ the\ rocket, m\ is\ the\ mass$$

Such as $a = 3g$

$$P_{actual} = P + 3mg = P + 3P = 4P$$

$$P_{actual} = 4 * 75 = 300\ kg$$

Answer: the effective weight is 300 kg.