$$a = \sqrt{a_c^2 + a_t^2} = \sqrt{(4.7)^2 + (1.9)^2} = 5.1\,\mathrm{m/s^2} \Rightarrow ma = 40.0\ \mathrm{kg}(5.1\,\mathrm{m/s^2}) = 204.0\ \mathrm{N}$$