Question#20823

What is the frictional force on a body by air which is falling through air at an acceleration of 9.2m/s^2? (mass=0.25kg and g=9.8)

Solution:

Let:

$a = 9.2 \ m/s^2$

$m = 0.25 \ kg$

$F_f - ?$

According to the second Newton's law:

$a = \dfrac{F}{m}$

$F = F_g - F_f, \ were \ F_g \ is \ the \ gravitational \ force, F_f \ is \ frictional \ force$

$F_f = F_g - F$

$F_f = mg - ma = m(g - a)$

$F_f = 0.25(9.8 - 9.2) = 0.15 \ N$

Answer: 0.15 N.