

2007 F=ma Exam: Problem 6

Kevin S. Huang

Recall velocity is defined by

$$v = \frac{dx}{dt}$$

so

$$x = x_0 + \int_0^t v dt'$$

We have $v = 5t^2$ and $x_0 = 0$:

$$x = 0 + \int_0^t 5t'^2 dt'$$

Hence,

$$\boxed{x = \frac{5t^3}{3}}$$