

2007 F=ma Exam: Problem 7

Kevin S. Huang

The energy required to go from 0 mph to 2 mph is

$$E_1 = \Delta K_1 = \frac{1}{2}m(2)^2 - \frac{1}{2}m(0)^2$$

The energy required to go from 2 mph to 4 mph is

$$E_2 = \Delta K_2 = \frac{1}{2}m(4)^2 - \frac{1}{2}m(2)^2$$

Thus,

$$\boxed{\frac{E_2}{E_1} = \frac{6m}{2m} = 3}$$