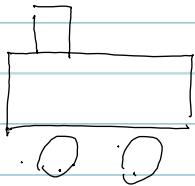
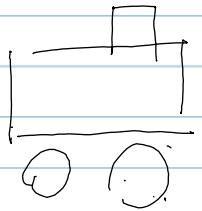


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如圖，假設有三個重  $1.0 \times 10^5$  公斤重的  
 火車頭相隔 6 公里。現以  $0.5$  公尺/秒<sup>2</sup> 的  
 加速度讓它們相撞，則一個火車  
 頭在碰撞前的總動能為何？



$$E_K = \frac{1}{2} M V^2$$

$$\begin{aligned} V_f^2 &= V_0^2 + 2 a S \\ &= 0 + 2 \times 0.5 \times 3 \times 10^3 \\ &= 3000 \end{aligned}$$

$$V_f = \sqrt{3000} \text{ 公尺/秒}$$

$$\begin{aligned} 2 \times \frac{1}{2} M V^2 &= M V^2 \\ &= 1.0 \times 10^5 \times 3 \times 10^3 \\ &= 3 \times 10^8 (\text{J}) \end{aligned}$$