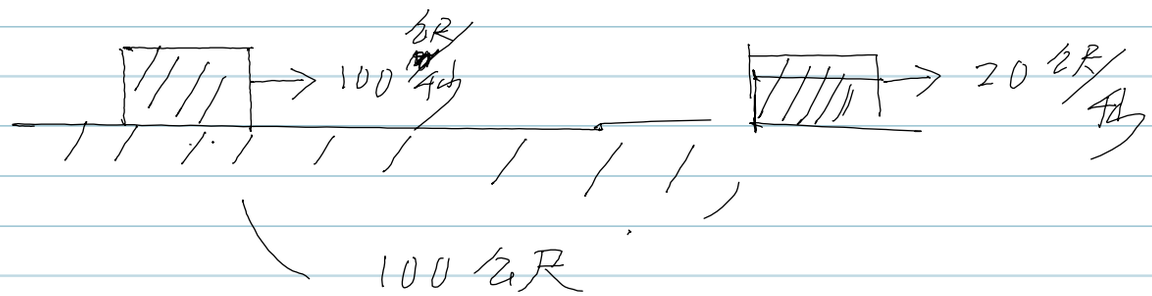
水平面上質量為10公斤的物體以100公尺/秒的速度運動(如圖)。當它移動100公尺後，速度降至20公尺/秒。求(1)摩擦力對它所做的功 (2)動摩擦係數為若干？



$$W_{net} = Wg \times S \times \cos 90^0 + N \times S \times \cos 90^0$$

$$+ f_K \times S \times \cos 180^0 = \Delta E_K = \frac{1}{2} \times M (v_f^2 - v_0^2)$$

$$= Mg \times 100 \times 0 + Mg \times 100 \times 0$$

$$+ \underbrace{f_K \times 100 \times (-1)} = \frac{1}{2} \times 10 (20^2 - 100^2)$$

$$W'_{net} = f_K \times 100 \times (-1) = 5(400 - 10000)$$

$$= -4.8 \times 10^5 \text{(焦耳)}$$

$$\mu_K N \times (-100) = -4.8 \times 10^5$$

$$\mu_K (Mg) = +4.8 \times 10^3$$

$$\mu_K = \frac{4.8 \times 10^3}{10 \times 10} = 4.8$$