

We know that  $F = ma$ . So, we can find acceleration:  $F = ma \Rightarrow a = \frac{F}{m} = \frac{6 \text{ N}}{3 \text{ kg}} = 2 \frac{\text{m}}{\text{s}^2}$ .

And we know that a cart starting from rest, so, the velocity in the beginning of the motion is equal to the zero:  $v_0 = 0$ . And we know acceleration. So, we can find the velocity after 2 seconds of the motion:

$$v_2 = v_0 + a \cdot t = 0 + 2 \cdot 2 = 4 \frac{\text{m}}{\text{s}}.$$

Answer: acceleration is  $2 \frac{\text{m}}{\text{s}^2}$ ; velocity at the end of two seconds is  $4 \frac{\text{m}}{\text{s}}$ .