Calculate the impulse acting on an object when it experiences a force $F(t) = \left(4.00 \frac{N}{s}\right) t$ acting over an interval from $t = 0$ to $t = 0.30\,s$.

$$J = \int F(t)\, dt$$

$$= \int_0^{0.30} 4.00 \frac{N}{s}\, t \; dt$$

$$\frac{4.00 \frac{N}{s}\, t^2}{2} \Bigg|_0^{0.30\,s}$$

$$2.00 \frac{N}{s} (0.30\,s)^2 = \boxed{0.18\,N\,s}$$