30. (a) The "height" of the triangular area enclosed by the rails and bar is the same as the distance traveled in time v: $d = vt$, where $v = 5.20\,\mathrm{m/s}$. We also note that the "base" of that triangle (the distance between the intersection points of the bar with the rails) is $2d$. Thus, the area of the triangle is

$$A = \frac{1}{2}(\text{base})(\text{height}) = \frac{1}{2}(2vt)(vt) = v^2t^2 \ .$$

Since the field is a uniform $B = 0.350\,\mathrm{T}$, then the magnitude of the flux (in SI units) is $\Phi_B = BA = (0.350)(5.20)^2t^2 = 9.46t^2$. At $t = 3.00$ s, we obtain $\Phi_B = 85.2\,\mathrm{Wb}$.

(b) The magnitude of the emf is the (absolute value of) Faraday's law:

$$\mathcal{E} = \frac{d\Phi_B}{dt} = 9.46\,\frac{dt^2}{dt} = 18.9t$$

in SI units. At $t = 3.00$ s, this yields $\mathcal{E} = 56.8$ V.

(c) Our calculation in part (b) shows that $n = 1$.