

Name: **Solution**

1. Convert into scientific notation: $342300 \text{ Volts} = \underline{3.423 \times 10^5 \text{ Volts}}$

2. Convert into mm without scientific notation: $1.45 \times 10^2 \text{ m} = \underline{145000 \text{ mm}}$

3. Given: $F = \frac{\rho AV^2}{2}$ where $F = 8 \text{ kg}\cdot\text{m/s}^2$ $A = 2 \text{ m}^2$ and $V = 1 \text{ m/s}$

$\rightarrow \rho = \frac{2F}{AV^2}$ What is the value of ρ (including units)? $\rho = 8 \text{ kg/m}^3$
 Based on the units, what word describes ρ ? density

$$\rho = \frac{2 \cdot 8 \text{ kg} \cdot \text{m} \cdot (1\text{s})^2}{\text{s}^2 \cdot 2 \text{ m}^2 \cdot (1\text{m})^2} \rightarrow \rho = \frac{8 \text{ kg}}{\text{m}^3}$$

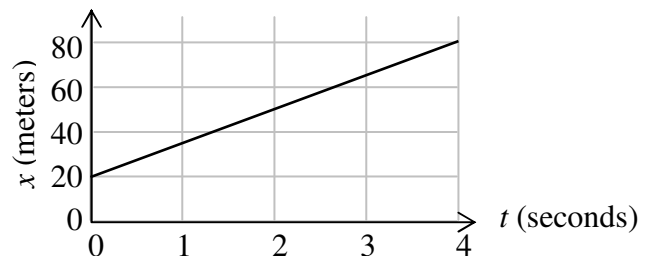
4. Given: $x = x_0 - \frac{1}{2}gt^2$ Symbolically solve for t (there are two answers!):

$$t = \pm \sqrt{\frac{2(x_0 - x)}{g}}$$

The plot shown shows the position of a car (x) as a function of time (t).

5. What is the equation for this line?

$$x = (15 \text{ m/s}) t + 20 \text{ m}$$



6. What is x (exactly) when $t = 1.0 \text{ s}$?

$$x = 35 \text{ m at } t = 1.0 \text{ s}$$

7. What is the area of the shaded side wall of this cylinder?
 (the symbol π should appear in the answer)

circumference $c = \pi D$
 area $A = c \cdot h = \pi D h \rightarrow \boxed{A = \pi D h}$ $A = \underline{48\pi} \text{ in}^2$

