Name: Key	ID:	Sec: 30

The speed of a bullet is measured to be 640 m/s as the bullet emerges from a barrel of length 1.2 m. Assuming constant acceleration, find the time that the bullet spends in the barrel after it is fired?

The bullet starts at rest ($v_0 = 0$), $\Delta x = 1.2$ m, $v = 640$ m/s, $t = ?$

$$\Delta x = \frac{(v_0 + v)}{2} t$$

or

$$x = \left(\frac{v_0 + v}{2}\right) t$$

$$1.2 = \left(\frac{0 + 640}{2}\right) t$$

$$t = \frac{1.2 \times 2}{640} = 0.00375 \text{ s}$$