A Bugatti Veyron can go from rest to 60 mph in 2.5 seconds. In SI units, compute this supercar's:

a) acceleration (assume it is uniform)

b) displacement (during the acceleration)

c) Would your car require more displacement, or less to go from 0 to 60 mph? Why?

a) $a = ?$ $\quad v_i = 0 \quad v_f = 26.81\ m/s$

$t = 2.5\ s$

$$v_f = v_i + at$$

$$a = \frac{v_f - v_i}{t} = \frac{26.81 - 0}{2.5} = 10.72\ m/s^2$$

b) $\Delta x = ?$

$$\Delta x = \tfrac{1}{2}(v_i + v_f)t$$

$$= \tfrac{1}{2}(0 + 26.81)(2.5)$$

$$\Delta x = 33.5\ m$$