

$$\boxed{2/32} \quad s_{car} = vt = \frac{120}{3.6} t$$

$$s_{cycle} = v_{av} t_1 + v_{max} t_2 = \frac{1}{2} \frac{150}{3.6} t_1 + \frac{150}{3.6} t_2$$

$$\text{where } t_1 = \frac{v_{max}}{a} = \frac{150}{3.6 \times 6} = 6.94 \text{ s} \quad \& \quad t_2 = t - 6.94 - 2$$

$$s_{car} = s_{cycle}; \quad \frac{120}{3.6} t = \frac{75}{3.6} 6.94 + \frac{150}{3.6} (t - 8.94)$$

$$30t = 820.8, \quad t = 27.36 \text{ s}$$

$$s = \frac{120}{3.6} (27.36) = \underline{912 \text{ m}}$$