

Exercice 3 $\mathcal{L} SA, B, C, D; S_3$

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3-1/ Evénement de référence = date de passage du mobile au point A (1)

$$3-2/ \left\{ \begin{array}{l} v_m = \frac{AD}{t_D - t_A} = 4 \text{ m} \cdot \text{s}^{-1} \\ v(t_3) = v_m = 4 \text{ m} \cdot \text{s}^{-1} \end{array} \right. \quad (0,5)$$

$$3-3/ x(t) = 4t$$

$$\Rightarrow \left\{ \begin{array}{l} x_B = x(t_B) = 4 \times 2 = 8 \text{ m} \\ x_C = v \times t_C \Rightarrow t_C = \frac{x_C}{v} = 4 \text{ s} \end{array} \right. \quad (0,5)$$

$$3-4/ x'_D = 0 \Rightarrow \left\{ \begin{array}{l} t'_A = t_A - t_D = -6 \text{ s} \\ t'_F = t_F - t_D = 4 \text{ s} \end{array} \right. \quad (0,5)$$

$$3-5/ t_0 = t_A = 0 \text{ et } x'_C = 0$$

$$x'(t) = 4t - 16$$

$$\Rightarrow \left\{ \begin{array}{l} x'_A = 4 \times 0 - 16 = -16 \text{ m} \\ x'_D = 4 \times 6 - 16 = 8 \text{ m} \end{array} \right. \quad (0,5)$$

$$3-6/ \Delta t = t_F - t_D = 4 \text{ s} \quad (0,5)$$

$$DF = v \Delta t = R \frac{\pi}{2}$$

$$\Rightarrow \left\{ R = \frac{2v \Delta t}{\pi} = 10,2 \text{ m} \right. \quad (0,5)$$