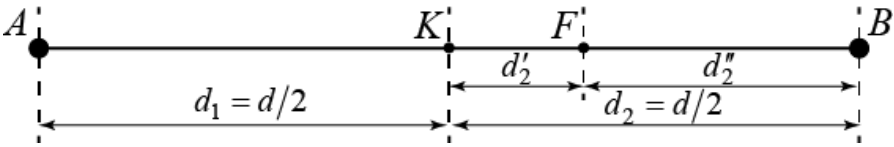


Problema 9.1

<p>a)</p>	 <p align="center">$AB = d; \quad AK = KB$</p>	<p align="right">1.0 p.</p>
<p>b)</p>	$v_{med.} = \frac{d}{t_1 + t_2} \quad (1) \quad \textbf{(0.5 p.)}$ $t_1 = \frac{d/2}{v_1} = \frac{d}{2v_1}; \quad t_2 = \frac{d}{2v_{2med.}} \quad \textbf{(1.0 p.)}$ $t_1 + t_2 = \frac{d}{2} \left(\frac{1}{v_1} + \frac{1}{v_{2med.}} \right) = \frac{d(v_1 + v_{2med.})}{2v_1 v_{2med.}} \quad (2) \quad \textbf{(2.0 p.)}$ <p>Introducem (2) în (1)</p> $v_{med.} = \frac{2v_1 v_{2med.}}{v_1 + v_{2med.}} \quad (3) \quad \textbf{(1.0 p.)}$ <p>Determinăm $v_{2med.}$ pe porțiunea KB:</p> $v_{2med.} = \frac{d'_2 + d''_2}{t_2} \quad (4) \quad \textbf{(0.5 p.)}$ $d'_2 = v'_2 \cdot \frac{t_2}{2}; \quad d''_2 = v''_2 \cdot \frac{t_2}{2} \quad (5) \quad \textbf{(1.0 p.)}$ <p>Introducem (5) în (4)</p> $v_{2med.} = \frac{v'_2 + v''_2}{2} \quad (6) \quad \textbf{(1.0 p.)}$ <p>Introducem (6) în (3)</p> $v_{med.} = \frac{v_1(v'_2 + v''_2)}{v_1 + \frac{v'_2 + v''_2}{2}} \Rightarrow v_{med.} = \frac{2v_1(v'_2 + v''_2)}{2v_1 + v'_2 + v''_2} \quad \textbf{(1.0 p.)}$	<p align="right">8.0 p.</p>
<p>c)</p>	<p>Calculăm $v_{med.}$</p> $v'_2 = 5 \frac{\text{m}}{\text{s}} = 5 \frac{(1/1000) \text{ km}}{(1/3600) \text{ h}} = 5 \cdot 3,6 \frac{\text{km}}{\text{h}} = 18 \frac{\text{km}}{\text{h}} \quad \textbf{(0.5 p.)}$ $v_{med.} = \frac{2 \cdot 60 \cdot (18 + 42)}{2 \cdot 60 + 18 + 42} = 40 \frac{\text{km}}{\text{h}} \quad \textbf{(0.5 p.)}$	<p align="right">1.0 p.</p>
<p align="right">Total max</p>		<p align="right">10.0 p.</p>