str. 36/úloha 183

První automobil

$s_c = 150\ km$

$s_1 = 75\ km$

$v_1 = 30\ \frac{km}{h}$

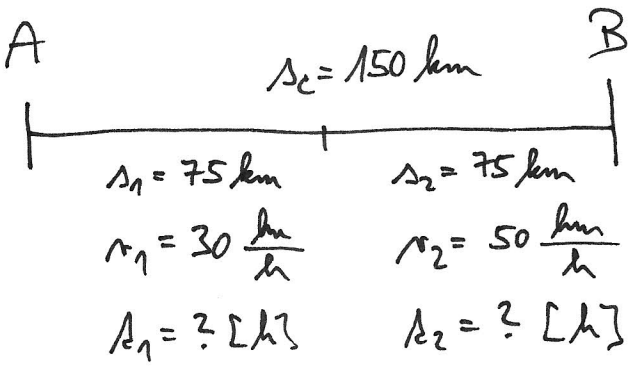
$t_1 = ?\ [h]$

$s_2 = 75\ km$

$v_2 = 50\ \frac{km}{h}$

$t_2 = ?\ [h]$

$v_p = ?\ \left[\frac{km}{h}\right]$



Řešení:

$$v_p = \frac{s_c}{t_c}$$

$$s_c = s_1 + s_2$$

$$t_c = t_1 + t_2$$

$$v_1 = \frac{s_1}{t_1} \Rightarrow t_1 = \frac{s_1}{v_1}$$

$$t_1 = \frac{75}{30}$$

$$t_1 = 2{,}5\ h$$

$$v_2 = \frac{s_2}{t_2} \Rightarrow t_2 = \frac{s_2}{v_2}$$

$$t_2 = \frac{75}{50}$$

$$t_2 = 1{,}5\ h$$

$$t_c = t_1 + t_2$$

$$t_c = 2{,}5 + 1{,}5$$

$$t_c = 4\ h$$

$$v_p = \frac{s_c}{t_c}$$

$$v_p = \frac{150}{4}$$

$$v_p = 37{,}5\ \frac{km}{h}$$

První automobil má průměrnou rychlost $37{,}5\ \frac{km}{h}$.

Druhý automobil

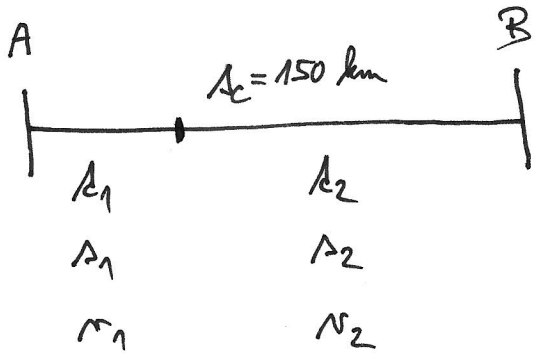
$s_c = 150\ km$

$s = s_1 = s_2 = \frac{s_c}{2}$

$v_1 = 30\ \frac{km}{h}$

$v_2 = 50\ \frac{km}{h}$

$v_p = ?\ [\frac{km}{h}]$



$s_1 = s_2$

Protože $s_1 = s_2$ jde o Aritmetický průměr rychlostí.

$$v_p = \frac{v_1 + v_2}{2}$$

$$v_p = \frac{30 + 50}{2}$$

$$v_p = 40\ \frac{km}{h}$$

Druhý automobil má průměrnou rychlost $40\ \frac{km}{h}$.