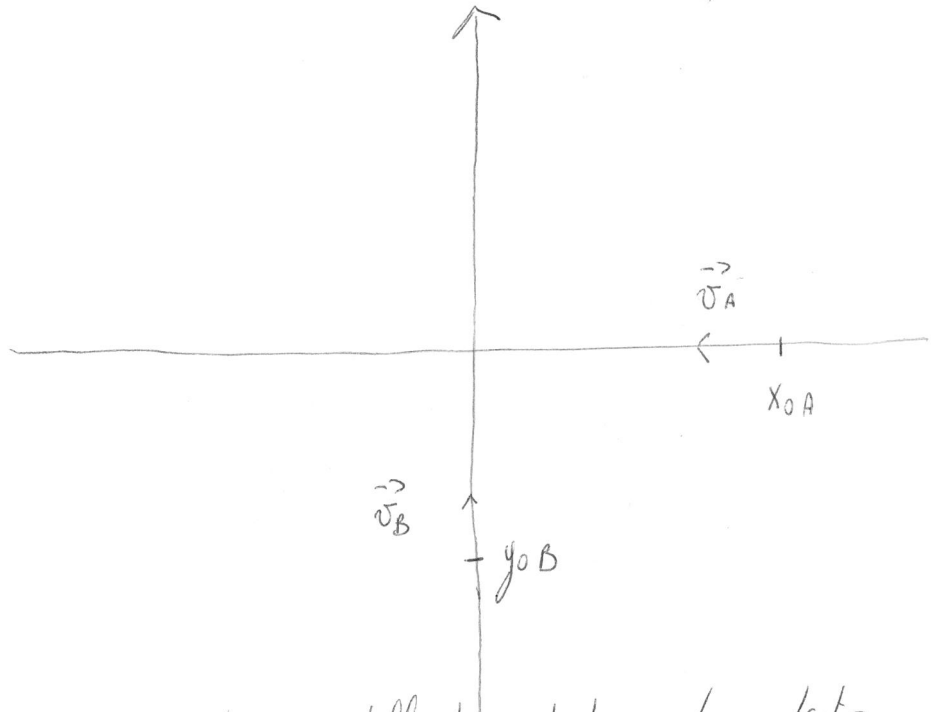
Es 1.58




$x_{0A} = 20\ m$

$v_A = -10\ m/s$

$v_B = 15\ m/s$

$x_{0B} = -15\ m$

È sufficiente trovare il minimo della loro distanza al quadrato. $x_A^2(t) + y_B^2(t)$

$$\frac{d}{dt}\left(x_A^2(t) + y_B^2(t)\right) = \frac{d}{dt}\left[\left(v_A \cdot t + x_{0A}\right)^2 + \left(v_B t + y_{0B}\right)^2\right] =$$

$$= 2 v_A \left(v_A \cdot t + x_{0A}\right) + 2 v_B \left(v_B t + y_{0B}\right) = 0$$

↳ condizione di minimo.

$$\Rightarrow v_A \left(v_A t_m + x_{0A}\right) + v_B \left(v_B t_m + y_{0B}\right) = 0 \Rightarrow \left(v_A^2 + v_B^2\right) t_m = -v_A x_{0A} - v_B x_{0B}$$

$$t_m = -\frac{v_A x_{0A} + v_B x_{0B}}{v_A^2 + v_B^2} = 1{,}31\ s$$

$$x_A^2(t_m) + y_B^2(t_m) = 68{,}8\ m^2 \qquad h_m = \sqrt{x_A^2(t_m) + y_B^2(t_m)} = 8{,}325.$$