Answer on Question #47935, Physics, Mechanics Kinematics Dynamics

Huong left the white house and traveled east. 0.3 hours later Shanice left traveling at 64 mph in an effort to catch up to Huong. After traveling for 0.7 hours Shanice finally caught up. What was Huong's average speed?

Solution:

We begin with the conditions of our problem and the initial data. We know that Shanice left traveling at 64 mph, this mean $\mathrm{v}_2 = 64\ \mathrm{mph}$ and his journey took 0.7 hours, this mean $\mathrm{t}_2 = 0.7\mathrm{hours}$.

Thus we can find the distance that he covered as we know the time and speed of movement. The distance will be equal.

$$\mathrm{Distance} = \mathrm{v}_2\mathrm{t}_2 = 64\ \mathrm{mph} \cdot 0.7\ \mathrm{hours} = 44.8\ \mathrm{mile}$$

Now we can determine the value of Huong's average speed. In order to determine the average speed, we need to consider that Shanice began its movement while Huong already as 0.3 hours on the march, so the average velocity is equal to

$$v_1 = \frac{44.8\ mile}{0.3 + 0.7} = \frac{44.8}{1} = 44.8\ mph$$

The average Huong's speed is equal to 44.8 mph.