Answer on Question #70178 Physics / Other

Two cars travel in the same direction along a straight highway, one at a constant speed of $v_2 = 59$ mi/h and the other at $v_1 = 79$ mi/h. Assuming they start at the same point, how much sooner does the faster car arrive at a destination $l = 12$ mi away?

Solution:

The time of motion for faster car

$$t_1 = \frac{l}{v_1} = \frac{12 \text{ mi}}{79 \frac{\text{mi}}{\text{h}}} = \frac{12}{79} \text{h}$$

The time of motion for slower car

$$t_2 = \frac{l}{v_2} = \frac{12 \text{ mi}}{59 \frac{\text{mi}}{\text{h}}} = \frac{12}{59} \text{h}$$

So, the faster car arrive at a destination sooner on

$$\Delta t = t_2 - t_1 = \frac{12}{59} - \frac{12}{79} = 0.05 \text{ h} = 3 \text{ min}.$$

Answers: 3 min.