

Answer on Question #53757, Physics / Mechanics | Kinematics | Dynamics

Jed was driving his car at 40km/hr on a subdivision where the speed limit is 20km /hr. He was spotted by an officer in a motorcycle, who accelerates in pursuit. By the time Jed sees the officers motorcycle it was traveling at 60km/ hr. What is the officer's velocity relative to Jed car.

Solution:

If two objects are moving in parallel their relative velocity can be calculated.

If two objects move in same direction at different speeds we will have:

If speed of 1st object = x km/hr and Speed of 2nd object = y km/hr

Therefore, their relative speed = $(x - y)$ km/hr [$x > y$], then
in our case

$$\text{relative speed} = 60 - 40 = 20 \text{ km/hr}$$

Answer. 20 km/hr