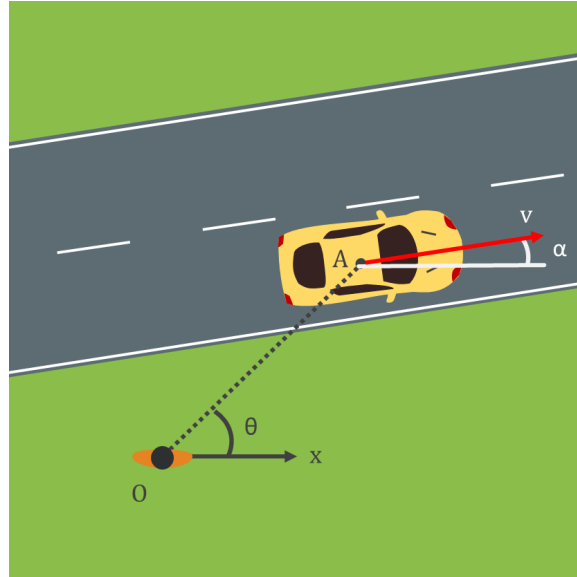




Observing a Car



An observer at O is watching a car that is moving with a velocity v at an angle of $\alpha = 15^\circ$. Decompose the velocity of the car to the radial axis round O if the observer is exactly looking from an angle of $\theta = 45^\circ$ at the car.

Given:

Angle: $\alpha = 15^\circ$

Angle: $\theta = 45^\circ$

Velocity vector: v

Solution:

Moving the velocity vector down (see Figure 1), it can be seen that the remaining angle between v and the radial axis is β . Where $\beta = \theta - \alpha = 45^\circ - 15^\circ = 30^\circ$.

Using basic trigonometry of a right triangle, it follows that:

$$v_r = v \cos \beta \quad \Rightarrow \quad v_r = v \cos(30^\circ) \quad (1)$$

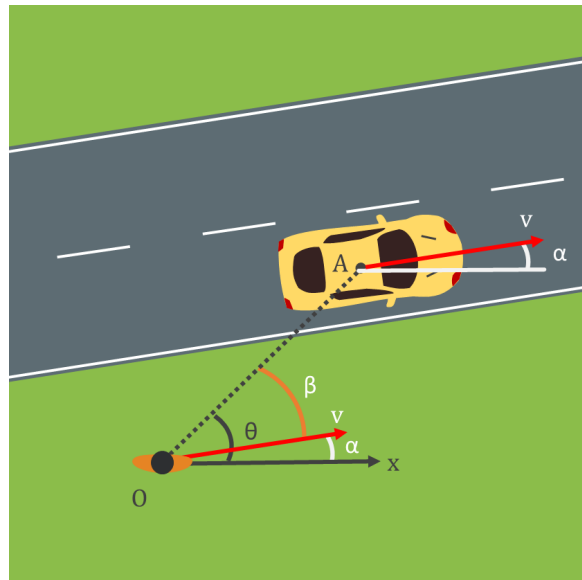


Figure 1: Observing a Car