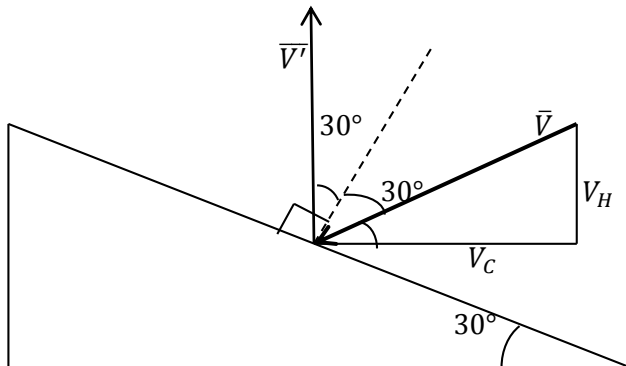


### Answer on Question #44294-Physics-Mechanics-Kinematics-Dynamics

Hailstones falling vertically with a speed of 10m/s hit the wind screen (wind screen makes an angle 30 degree with the horizontal) of a moving car and rebound elastically. Find the velocity of the car if the driver finds the hailstones rebound vertically after striking

#### Solution



$\vec{V}$  is the velocity of a hailstone relatively car.

$$\vec{V} = \vec{V}_C + \vec{V}_H,$$

where  $\vec{V}_C$  is the velocity of car relatively ground,  $\vec{V}_H$  is the velocity of a hailstone relatively ground.

The velocity of the car is

$$V_C = V_H \cot 30^\circ = 10\sqrt{3} \frac{m}{s}.$$

**Answer:**  $10\sqrt{3} \frac{m}{s}$ .