Answer on Question #70658-Physics-Classical Mechanics

To a person going north with a velocity of 12 km/hr, the rain appears to fall vertically downwards with a velocity of 5 km/hr. Find the actual speed and the direction of the rain.

Solution

The actual speed is

$$v = \sqrt{5^2 + 12^2} = 13\frac{km}{h}.$$

The direction is

$$\theta = \sin^{-1}\frac{5}{13} = 23°$$

with vertical and tilted northward.