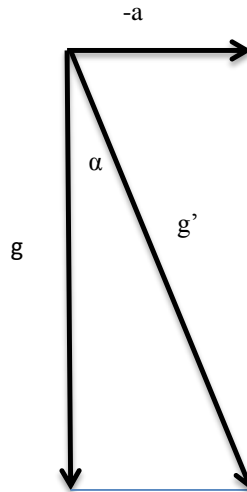


A car is moving on a level road. a pendulum suspended from the ceiling makes an angle of 10 degree with the vertical. find the acc. of car. $g=10\text{m/s}^2$

As the car accelerated, the pendulum moved from the vertical to angle α with the vertical:



$$\vec{g}' = \vec{g} - \vec{a}$$

\vec{g}' - effective gravitational acceleration

\vec{g} - gravitational acceleration

\vec{a} - acceleration of the car

Therefore:

$$\tan(\alpha) = \frac{a}{g}$$

$$a = g * \tan(\alpha) = 10 * \tan 10 = 1.76 \text{ m/s}^2$$

Answer: $a = 1.76 \frac{\text{m}}{\text{s}^2}$