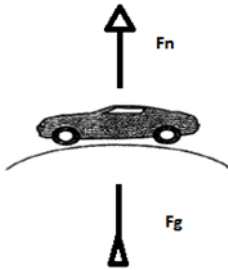


Answer on Question #62666-Physics -Other

While driving your car at a constant speed of 48.4 km/h, you encounter a dip in the road that can be approximated as a circle with a radius of 76.5 m. If your mass is 65.4 kg, what is the normal force acting on you at the bottom of the dip?

Solution



$$ma = \frac{mv^2}{R} = F_g - F_n$$

$$F_n = F_g - \frac{mv^2}{R} = mg - \frac{mv^2}{R} = m \left(g - \frac{v^2}{R} \right) = 65.4 \left(9.81 - \frac{(48.4)^2}{76.5 \cdot 3.6} \right) = 487 \text{ N.}$$

Answer: 487 N.

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