

**Answer on Question #63420-Physics-Other**

A car is traveling at 36.6 mi/h on a horizontal highway.

The acceleration of gravity is 9.8 m/s<sup>2</sup> . If the coefficient of friction between road and tires on a rainy day is 0.094, what is the minimum distance in which the car will stop? (1 mi = 1.609 km)

**Solution**

From the conservation of energy:

$$\frac{mv^2}{2} = \mu mgd$$

The stopping distance is

$$d = \frac{v^2}{2\mu g} = \frac{\left(\frac{1.609}{3.6} 36.6\right)^2}{2(0.094)(9.8)} = 145 \text{ m}$$

**Answer: 145 m.**

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