**Answer on Question #72583, Physics / Mechanics | Relativity**

A driver is negotiating a turn on a mountain road that has a radius of $R = 40.0$ m when the $m = 1600$ kg car hits a patch of wet road. The coefficient of friction between the wet road and the wheels is $\mu = 0.500$ if the car is moving at $v = 30.0$ km/h will the car skid off the road?

**Solution:**

Car will skid off the road when the centripetal force would be more then friction force

$$F_{\text{c}} > F_{\text{frict}}$$

The centripetal force

$$F_{\text{c}} = \frac{mv^2}{R} = \frac{1600 \times (30 \div 3.6)^2}{40.0} = 2777.8 \text{ N}$$

Friction force

$$F_{\text{frict}} = \mu N = \mu mg = 0.5 \times 1600 \times 9.8 = 7840 \text{ N}$$

Thus

$$F_{\text{c}} < F_{\text{frict}}$$

So car will not skid off the road.

**Answer:** Car will not skid off the road.