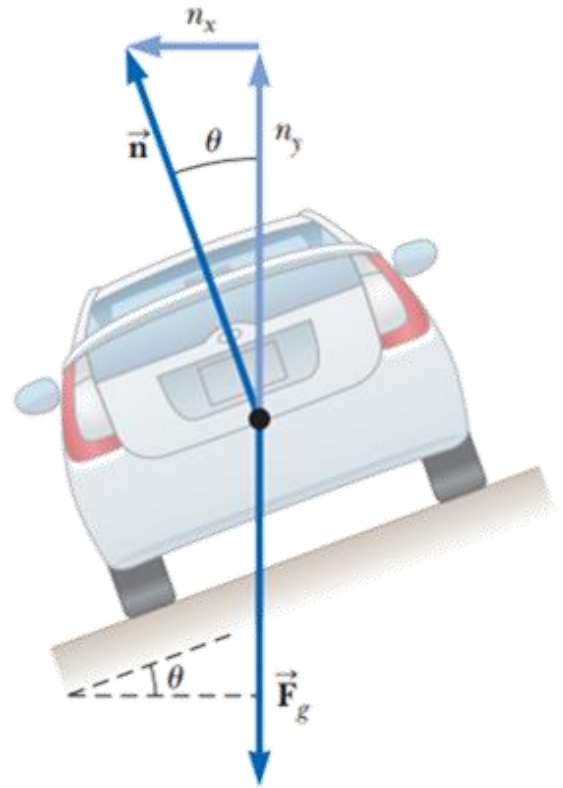


A civil engineer wishes to redesign the curved roadway in Example 6.3 in such a way that a car will not have to rely on friction to round the curve without skidding. In other words, a car moving at the designated speed can negotiate the curve even when the road is covered with ice. Such a ramp is usually *banked*, which means that the roadway is tilted toward the inside of the curve as seen in the opening photograph for this chapter. Suppose the designated speed for the ramp is to be  $13.4 \text{ m/s}$  ( $30.0 \text{ mi/h}$ ) and the radius of the curve is  $35.0 \text{ m}$ . At what angle should the curve be banked?



#### WHAT IF?

Imagine that this same roadway were built on Mars in the future to connect different colony centers. Could it be traveled at the same speed?