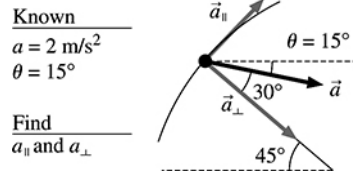


3.43. Model: The car is treated as a particle in this problem.

Visualize:



Solve: (a) The tangential component is $a_{\parallel} = a \sin 30^\circ = (2.0 \text{ m/s}^2)(0.5) = 1.0 \text{ m/s}^2$.

(b) The perpendicular component is $a_{\perp} = a \cos 30^\circ = (2.0 \text{ m/s}^2)(0.866) = 1.7 \text{ m/s}^2$.

Assess: Magnitudes of the tangential and perpendicular components of acceleration are reasonable.