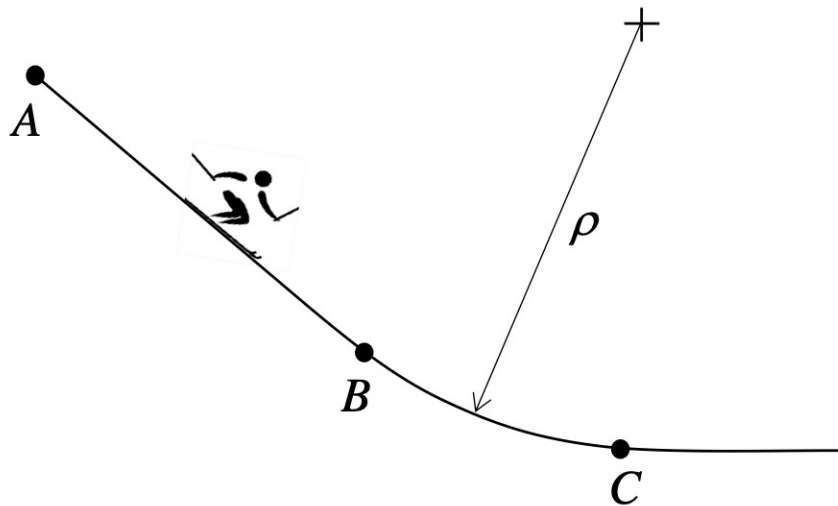


Problem H.1.D

Given: A skier is moving down a slope. Along the straight slope from A to B, her speed is changing at a constant rate of \dot{v}_{AB} . From B to C, the slope is curved with a radius of curvature of ρ . At point C, her speed is changing at a rate of \dot{v}_C . The skier's speed at points A, B and C are v_A , v_B and v_C , respectively.

Find: For this problem:

- Sketch the tangent and normal unit vectors at points A, B and C.
- Calculate the acceleration vectors at points A, B and C.
- Sketch the acceleration vectors at points A, B and C.



Use the following parameters in your analysis: $\dot{v}_{AB} = 5 \text{ m/s}^2$, $\dot{v}_C = -1.5 \text{ m/s}^2$, $\rho = 175 \text{ m}$, $v_A = 20 \text{ m/s}$, $v_B = 30 \text{ m/s}$ and $v_C = 40 \text{ m/s}$.