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| **Quiz #5**  Dynamics | Name (LAST, First) |

**Given**: A particle of mass *m* starts its motion on the inside surface of a smooth conical shell with initial velocity **vo** tangent to the shell’s horizontal rim (Point *A*). At Point *B*, distance *z* below the rim, the velocity is **v** (speed *v* with direction angle ** below the horizontal).

The known quantities are: *vo*, *R*, *h*, *z*.

**Req’d**: Determine expressions for the speed *v* and angle **.

*Hints*: What forces act on particle? A top-view of the cone might be useful.

*z*

**vo**

**v**

******

*h*

*R*

*A*

*B*