Given: A stone is thrown upward and at the tip-pity top of its path its vertical velocity is momentarily zero.

What is its acceleration at this point?

A) \( a_{top} = 9.8 \text{ m/s}^2 \) and is directed down.
B) \( a_{top} = 0 \text{ m/s}^2 \) and its directed is undetermined.
C) \( a_{top} = 9.8 \text{ m/s}^2 \) and is directed up.

Near the surface of the Earth, for all practical purposes the gravitational acceleration is constant, which is \( 9.8 \text{ m/s}^2 \) and is directed downward.

To illustrate how it works, let us take for example and upward initial velocity of \( 9.8 \text{ m/s}^2 \). One second later the velocity will be zero. Two seconds later the velocity will be \(-9.8 \text{ m/s}^2\). In other words, in each second the velocity is decreased by \( 9.8 \text{ m/s}\).

Answer A.