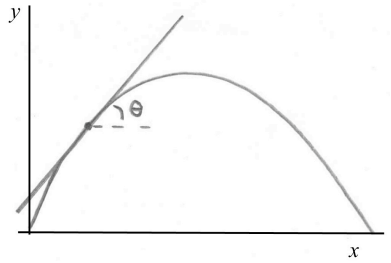
Consider an object moving through in the air under gravity. Assume that the motion is two dimensional (i.e. the object has a non-zero horizontal velocity). As the object reaches the highest point in its arc, what can we say about the magnitudes of its velocity and acceleration?

1) The velocity and acceleration are zero.
2) The velocity is zero.
3) The acceleration is zero.
4) Both the velocity and acceleration are zero.
5) The velocity is at a minimum.
6) The acceleration is at a minimum.
7) Both the velocity and acceleration are at a minimum.
8) More than one of the above is true.
9) None of the above is true.

For a parabolic trajectory under the influence of gravitation, The slope of the tangent line to the graph of y vs x can be used to determine:



1) The **magnitude** of the velocity but **not the direction**
2) The **direction** of the velocity but **not the magnitude**.
3) The magnitude **and** direction of the velocity
4) Neither the magnitude nor the direction of the velocity.