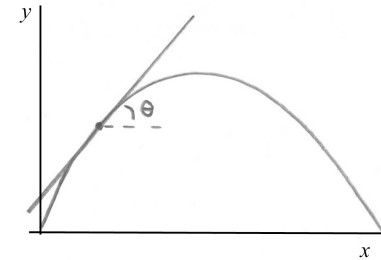


Consider an object moving through in the air under gravity. Assume that the motion is two dimensional (i.e. the object has a non-zero horizontal velocity). As the object reaches the highest point in its arc, what can we say about the magnitudes of its velocity and acceleration?

- 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.