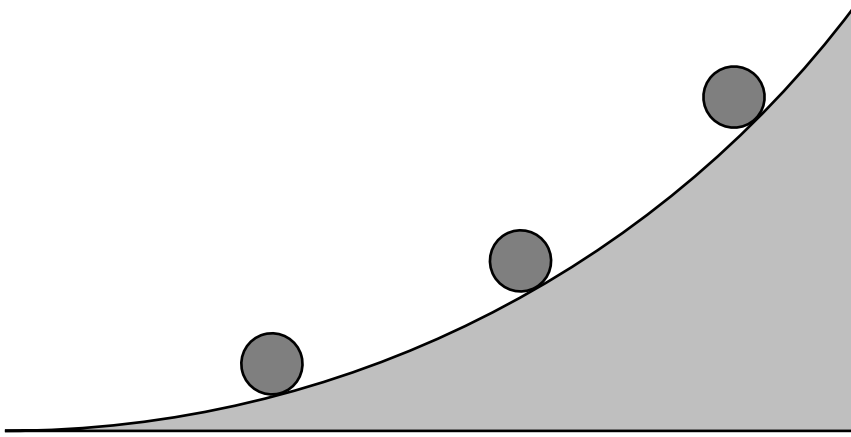


Denote the speed of the ball by  $v$  and its tangential acceleration by  $\vec{a}_T$ .



As the ball rolls down this hill,

- A)  $v$  increases and  $a_T$  decreases.
- B)  $v$  decreases and  $a_T$  increases.
- C) Both increase.
- D) Both remain constant.

By inspection, the tangential component of the acceleration decreases with the height. On the other hand, since  $a_T$  points downhill, the speed

keeps on increasing.

**Answer A.**

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