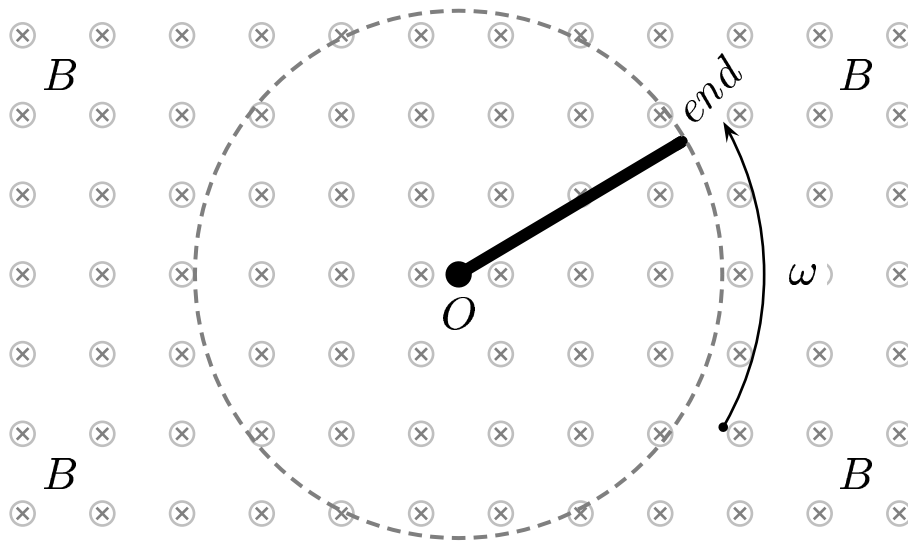


Given: A metal rod is rotating counter-clockwise with one end as the pivot at  $O$  and the other end (denoted  $end$ ) swinging around in a circle (see the dashed circle in the figure below). The magnetic field  $B$  is constant and into the page.



Which end of the rotating rod has the higher electric potential?

- A)  $V_O < V_{end}$
- B)  $V_O \approx V_{end}$
- C)  $V_O > V_{end}$

By inspection, the direction of the vector-cross-product (the magnetic

force on  $q$ ); *i.e.*, on a positive charge on the rod, should be directed radially inward. So a positive charge is being “pushed” by the magnetic field from the *end* to the *middle* “ $O$ ”. This implies  $V_O > V_{end}$ .

Answer **C**.

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