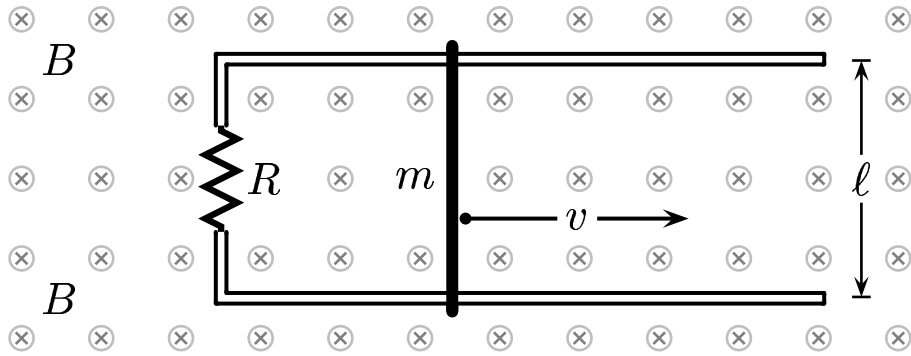


Given: A metal rod (with mass m) is sliding to the right, along two parallel metal rails, with a constant speed v . A resistor R is placed across the parallel tracks on the left. The magnetic field B is constant and into the page.



Determine the direction of the induced current I .

- A) clockwise
- B) zero
- C) counter-clockwise

Lenz's Law says the B_{ind} must oppose the change of the flux defined by the loop, in order to make the flux remain constant.

As the rod slides to the right, the rectangular area defined by the left end, the two rails, and the metal rod is expanding; e.g., the flux is increasing. To prevent the increase of the flux, the magnetic field B_{ind} must point out of the page.

Using the right-hand rule, the current is flowing counter-clockwise.

Answer **C**.

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