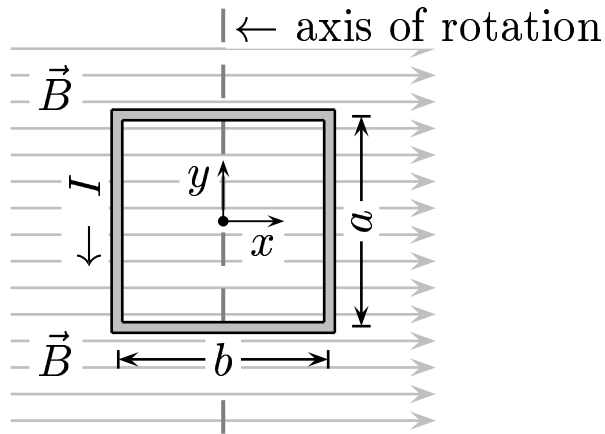


Current I is counterclockwise. Loop area is $a \times b$. \vec{B} is along $+\hat{i}$, the positive x -axis.



Find the direction of torque τ due to \vec{B} .

- A) The direction of τ is along $+j$, the positive y -axis.
- B) The direction of τ is along $-j$, the negative y -axis.
- C) The direction of τ is along $+k$, the positive z -axis.
- D) The direction of τ is along $-k$, the negative z -axis.

The force on the left side is out from the page and on right side is opposite to it; *i.e.*, into the page. This leads to a counter-clockwise rotation as viewed from the top. Right-hand-rule of rotation gives the direction of

τ to be along $+j$, the positive y -axis. Check that it agrees with $\tau = \mu \vec{B}$, where μ is the dipole moment.

Answer **A**.

29.03-03 Current Loop in B 2004-3-24