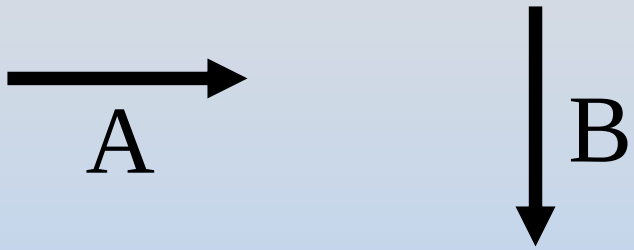
Concept Question: Cross Product

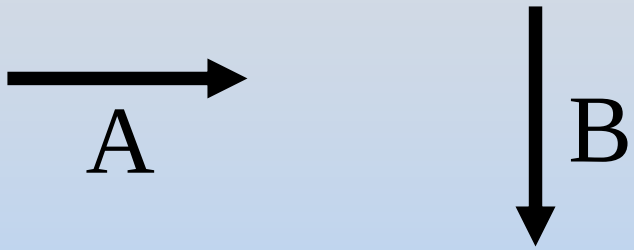
What is the direction of A x B given the following two vectors?



1. up
2. down
3. left
4. right
5. into page
6. out of page
7. Cross product is zero (so no direction)

Concept Question Answer: Cross Product

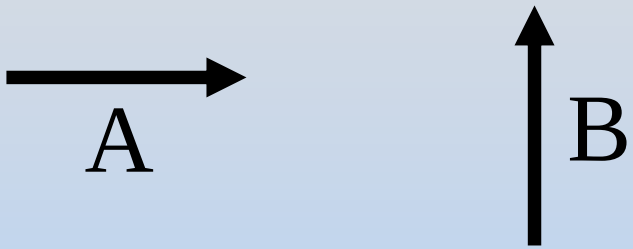
Answer: 5. A x B points into the page



Using your right hand, thumb along A, fingers along B, palm into page

Concept Question: Cross Product

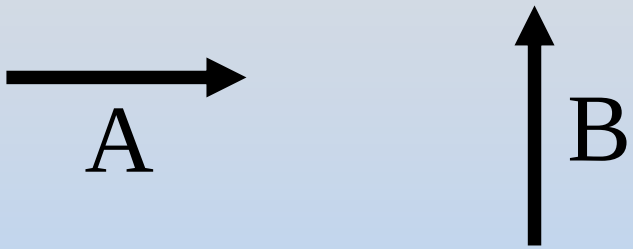
What is the direction of A x B given the following two vectors?



1. up
2. down
3. left
4. right
5. into page
6. out of page
7. Cross product is zero (so no direction)

Concept Question Answer: Cross Product

Answer: 6. A x B points out of the page

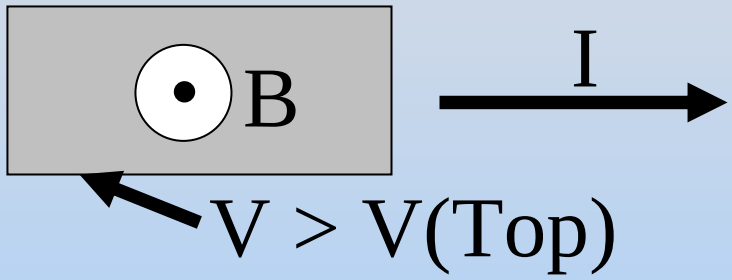


Using your right hand, thumb along A, fingers along B, palm out of page

Also note from before, one vector flipped so result does too

Concept Question: Hall Effect

A conducting slab has current to the right. A B field is applied out of the page. Due to magnetic forces on the charge carriers, the bottom of the slab is at a higher electric potential than the top of the slab.

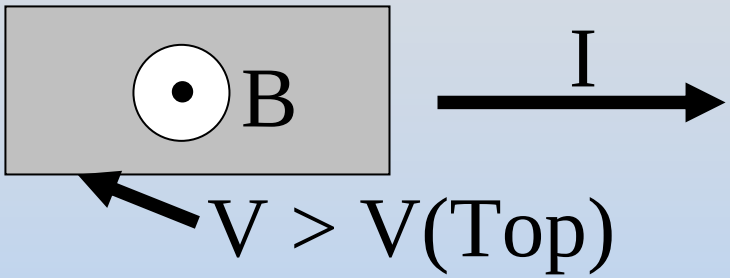


On the basis of **this** experiment, the sign of the charge carriers carrying the current in the slab is:

1. Positive
2. Negative
3. Cannot be determined
4. I don't know

Concept Question Answer: Hall Effect

Answer: 1. Here the charge carriers are positive



Look at the force on the carriers. If positive, they are flowing to the right, and **F** will be down. If negative they are flowing to the left and **F** will be down (don't forget the sign of q!) So either way the force is down. But we know that the result is a higher potential at the bottom – positive charges are moving down. So the carriers are positive

8.02SC Physics II: Electricity and Magnetism

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