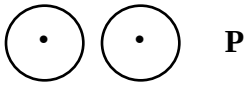
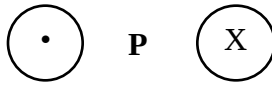


Pairs of Long Current Carrying Wires—Magnetic Field¹⁸⁵

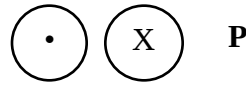
Shown below are several situations with two wires with currents of 2 A flowing out of (•) or into (X) the page. Rank the magnetic field at point **P** from greatest to least. Count a downward pointing field as negative and upward as positive. You may assume that each wire or point of interest is separated by the same distance from the adjacent items and that each situation is independent of all others.



A



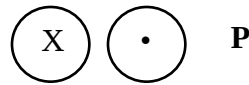
B



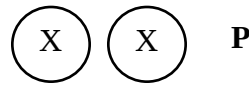
C



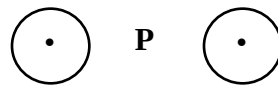
D



E



F



G

Greatest 1 _____ 2 _____ 3 _____ 4 _____ 5 _____ 6 _____ 7 _____ Least

Or, the magnetic field is the same in all cases. _____

Or, the magnetic field is zero in all cases. _____

Please carefully explain your reasoning.

How sure were you of your ranking? (Circle one)

Guessed

Sure

Very Sure

1 2 3 4 5 6 7 8 9 10

¹⁸⁵ C. Davies, B. Diesslin, M. Nelson, G. Shepherd