

Name: _____ Partner's Name _____

Problem Set Worksheet
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Instructions: Break into pairs for discussion, but complete work individually (i.e., each student should complete their own Problem Set worksheet). Can find useful information in Volume 1 of Heliophysics: Plasma Physics of the Local Cosmos. Do the first two following steps before going onto the 3rd part for Question 2 and 3. (1) Outline the solution, (2) give quantitative estimates of parameters needed, (3) then calculate numeric solution. If out of time, complete as Homework.

- (1) Draw a sketch of the Earth's magnetospheric cavity from any perspective and identify the location of current sheets, and label at least one open and closed flux tube.

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(2) Estimate the magnitude of the current (j) of one of the identified current sheets (state the assumptions you are making and SHOW WORK).

(3) Estimate the amount of magnetic energy that potentially could be liberated by magnetic reconnection across the above current sheet. (State assumptions and SHOW WORK).