Homework Assignment #28
(due Nov 11, 2021, at the beginning of class)

1. Griffiths 5.35

   Hint: For part (b) use $\mathbf{B} \approx \mathbf{B}_{\mathrm{dip}}$

2. Additional Problem:

   For the rectangular current loop sketeched below :

   The loop has horizontal length L_1 and vertical length L_2, that is in the range $-L_1/2 \le x \le +L_1/2$ and $-L_2/2 \le y \le +L_2/2$.
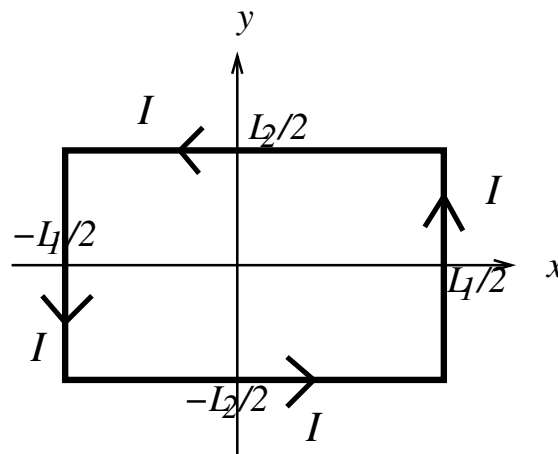
   (a) Determine $\vec{m}$.

   (b) Put this current loop into the **B**-field

   $$\mathbf{B} = 3\,\hat{\mathbf{x}} + 4\,\hat{\mathbf{y}} + 13x\,\hat{\mathbf{z}}$$

   (bi) Determine **N** using your result from part (a).

   (bii) Determine **F** on the loop.

3. Griffiths problem 6.1
   For practice: to get $\mathbf{B}_{\mathrm{dip}}$ show both routes using Eq.(5.88) as well as Eq.(5.89).

4. Optional, Just for Fun (will not be graded);
   Griffiths 5.41 (Hall Effect !)