Special Problem 8-3.3

Two slabs of dissimilar magnetic material share a common boundary, as shown below.

It is known that the magnetic flux density in region 1 (the left side) is:

\[ \mathbf{B}_1(\mathbf{r}) = 2\mu_0 \hat{a}_x + 14\mu_0 \hat{a}_y \left[ \frac{W}{m^2} \right] \]

Likewise, a surface current \( \mathbf{J}_s(\mathbf{r}) = 4 \hat{a}_z \) is flowing along the interface as shown below.

In region 2 (the right side), determine (in terms of \( \mu_0 \)):

1) the magnetic flux density.
2) the magnetic field.

\[ \mathbf{J}_s(\mathbf{r}) = 4 \hat{a}_z \]

\[ \mu_1 = 2\mu_0 \]

\[ \mu_2 = 3\mu_0 \]