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:

$$\mathbf{B}_{1}(\bar{r}) = 2\mu_{0}\,\hat{a}_{x} + 14\mu_{0}\,\hat{a}_{y} \quad \left[\frac{W}{m^{2}}\right]$$

Likewise, a surface current $\mathbf{J}_{s}(\bar{r}) = 4 \,\hat{a}_{z}$ is flowing along the interface as shown below.

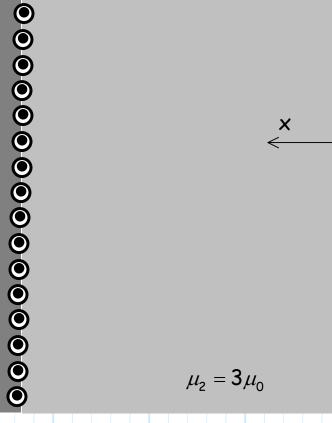
In region 2 (the right side), determine (in terms of μ_0):

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

$$\mathbf{J}_{s}(\bar{r}) = \mathbf{4}\,\hat{a}_{z}$$

$$\mathbf{B}_{1}(\bar{\boldsymbol{r}}) = 2\mu_{0}\,\hat{\boldsymbol{a}}_{x} + 14\mu_{0}\,\hat{\boldsymbol{a}}_{y}$$

 $\mu_1 = 2\mu_0$



X