56. (a) By the right-hand rule, $\vec{B}$ points into the paper at P (see Fig. 30-6(c)). To find the magnitude of the field, we use Eq. 30-11 for each semicircle ($\phi = \pi$ rad), and use superposition to obtain the result:

$$B = \frac{\mu_0 i\pi}{4\pi a} + \frac{\mu_0 i\pi}{4\pi b} = \frac{\mu_0 i}{4}\left(\frac{1}{a} + \frac{1}{b}\right) \ .$$

(b) The direction of $\vec{\mu}$ is the same as the $\vec{B}$ found in part (a): into the paper. The enclosed area is $A = (\pi a^2 + \pi b^2)/2$ which means the magnetic dipole moment has magnitude

$$|\vec{\mu}| = \frac{\pi\, i}{2}\left(a^2 + b^2\right) \ .$$