Find the expected value of $\ell(\boldsymbol{\pi})$ using the current expected value of the latent variable

The expected value of $\ell(\boldsymbol{\pi})$, with respect to the conditional distribution of $\mathbf{z}$, given observed data and $\hat{\boldsymbol{\pi}}^{(t-1)}$ is

$$\mathbb{E}_{\boldsymbol{\pi}}\left[\ell(\boldsymbol{\pi})\middle|\mathbf{x}, \mathbf{y}, \hat{\boldsymbol{\pi}}^{(t-1)}\right] = \sum_{i=1}^{n}\sum_{j=1}^{m}\mathbb{E}_{\boldsymbol{\pi}}\left[z_{ij}|x_i, y_i\right]\left\{\log f_j(x_i, y_i) + \log \pi_j\right\}$$

Since z_{ij} is an indicator, its expected value is simply the probability that data point i comes from model j

$$\begin{aligned}
\mathbb{E}_{\boldsymbol{\pi}}\left[z_{ij}|x_i, y_i\right] &= \Pr_{\boldsymbol{\pi}}(z_{ij}|x_i, y_i) \\
&= \frac{p(x_i, y_i|z_{ij} = 1)p(z_{ij} = 1)}{p(x_i, y_i)} \\
&= \frac{\pi_j f_j(x_i, y_i)}{\sum_{k=1}^{m} \pi_k f_k(x_i, y_i)}
\end{aligned}$$