1 A simple Gaussian location model

(A) This is equivalent with determine the distribution x under a gaussian distribution with precision ω and mean μ where $\omega \sim Gamma(\frac{d}{2}, \frac{\eta}{2\kappa})$, the result should be

$$p(x) \sim (1 + \frac{\kappa(x-\mu)^2}{\eta})^{-\frac{d+1}{2}} \tag{1}$$

Compare to the problem we have $\nu = d$, $s^2 = \frac{\eta}{d\kappa}$ and $m = \mu$