(e) Y_1 = # Contaminated in the 5 additional samples $\quad Y_1 \sim Bin(n=5, p)$

$p \sim \pi(p|y) = Beta(a_1, b_1)$

$P(Y_1 = 2)$

$P(Y_1 = 2 | p) = \binom{5}{2} p^2 (1-p)^3$

hint: think how you would do

If $\pi(p|y) \sim \begin{pmatrix} \frac{1}{3} & \frac{2}{3} \\ .4 & .6 \end{pmatrix}$ ← Possible values, ← Probabilities