

Name:

Quiz 2
October 2, 2013

1. Suppose that I have data x_1, \dots, x_n , sampling distribution $f(x | \theta)$, and prior $\pi(\theta)$.
 - (a) **(2 pts)** Write the expression for the posterior distribution for θ .

 - (b) **(2 pts)** Write the expression for the predictive distribution for x_{n+1} . Be sure to show how the predictive distribution depends on the sampling distribution and the posterior distribution.

 - (c) **(2 pts)** Describe how to draw a sample from the predictive distribution for x_{n+1} .

2. Suppose that I have a sample $(\theta_1^{(i)}, \theta_2^{(i)})$, $i = 1, \dots, n$ from the posterior distribution $\pi(\theta_1, \theta_2 | \mathbf{X})$.

(a) **(2 pts)** How do I use this sample to get a sample from the marginal posterior distribution of θ_1 ?

(b) **(2 pts)** How do I use this sample to get a sample from the posterior distribution for $\theta_1 + \theta_2$?