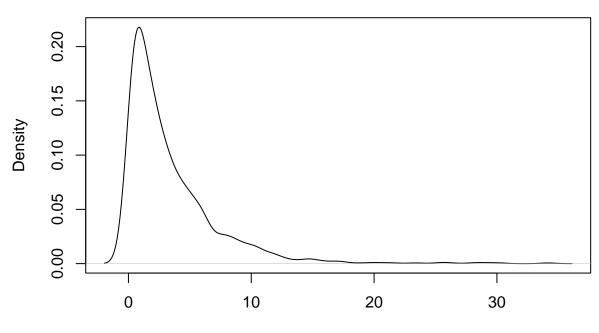
575_Quiz1

Matthew Stoebe

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```
alpha <- 1
beta <- 1
y \leftarrow c(1.5, 2.3, 7.7, 4.2, 1.1, .9, 4.3)
n <- length(y)</pre>
alpha_post \leftarrow alpha + n
beta_post <- beta + sum(y)</pre>
cat("Posterior shape =", alpha_post, "\n")
## Posterior shape = 8
cat("Posterior rate =", beta_post, "\n")
## Posterior rate = 23
Nsim <- 1000
lambda_samp <- rgamma(Nsim, shape = alpha_post, rate = beta_post)</pre>
y_pred <- rexp(Nsim, rate = lambda_samp)</pre>
plot(density(y_pred),
    main = "Posterior Predictive Distribution",
   xlab = "Simulated time until next flood")
```

Posterior Predictive Distribution



Simulated time until next flood