575_Quiz1

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```r
alpha <- 1
beta  <- 1

y <- c(1.5, 2.3, 7.7, 4.2, 1.1, .9, 4.3)

n <- length(y)

alpha_post <- alpha + n
beta_post  <- beta  + sum(y)

cat("Posterior shape  =", alpha_post, "\n")
```

```
## Posterior shape  = 8
```

```r
cat("Posterior rate   =", beta_post,  "\n")
```

```
## Posterior rate   = 23
```

```r
Nsim <- 1000

lambda_samp <- rgamma(Nsim, shape = alpha_post, rate = beta_post)
y_pred      <- rexp(Nsim,  rate = lambda_samp)

plot(density(y_pred),
     main = "Posterior Predictive Distribution",
     xlab = "Simulated time until next flood")
```

Posterior Predictive Distribution