Easy

```
p_grid <- seq(0,1, l = 1000)
prior <- rep(1,1000)
likelihood <- dbinom(6, 9, p_grid)
posterior <- likelihood*prior
posterior <- posterior/sum(posterior)
set.seed(100)
samples <- sample(p_grid, prob = posterior, size = 1e4,
                  replace = T)
```

E1

```
sum(samples<.2)/1e4
```

```
[1] 4e-04
```

E2

```
sum(samples>.8)/1e4
```

```
[1] 0.1116
```

E3

```
sum(samples > .2 & samples < .8)/1e4
```

```
[1] 0.888
```

E4

```
quantile(samples, .2)
```

```
      20%
0.5185185
```

E5

```
quantile(samples, .8)
```

```
      80%
0.7557558
```

E6

```
library(rethinking)
HPDI(samples, .66)
```

```
    |0.66     0.66|
0.5085085 0.7737738
```

E7

```
quantile(samples, c(.17, .83))
```

```
      17%       83%
0.5025025 0.7697698
```