

## Gamma and Beta Distributions

1. Let  $B \sim \text{Beta}(a, b)$ . Find the distribution of  $W = 1 - B$  using change of variables. Can you also find the distribution of  $W$  using a story proof?
2. Suppose  $X \sim \text{Gamma}(a, b)$  with  $a > 2, b > 0$ . Find  $\mathbb{E}[\frac{1}{X}]$ .