

Assignment 5

1. Give an algorithm for generating from the following density using the inverse transform method:

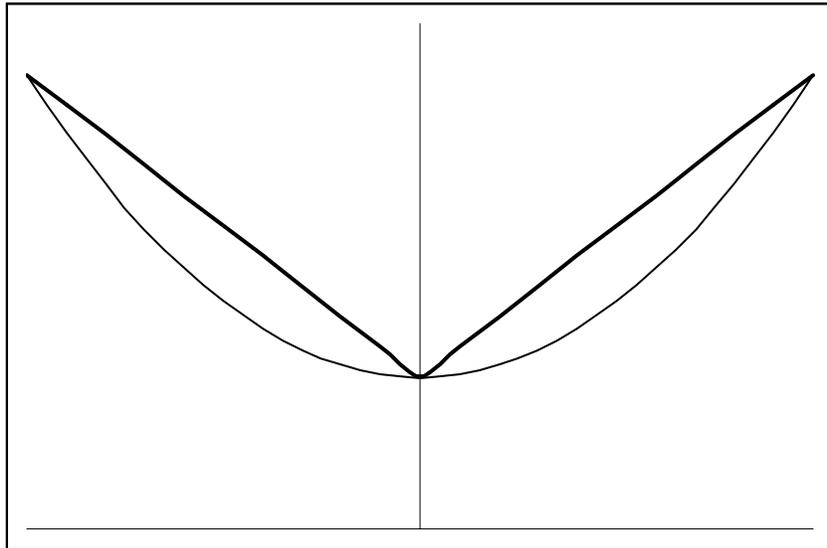
$$f(y) = \frac{\alpha c^\alpha}{y^{\alpha+1}}, y > c$$

where $\alpha > 0$ and $c > 0$.

2. Give two algorithms for generation from the following density using the acceptance/rejection method:

$$f_X(y) = \begin{cases} 0.6y^2 + 0.3, & -1 \leq y \leq 1 \\ 0, & \text{otherwise} \end{cases}$$

- Using a uniform majorizing function.
- Using a piecewise linear majorizing function as follows:



Use the composition method to generate each “candidate” random variate for part (b). Also, give the efficiency of each method.

- Do problem 8.8 of Law and Kelton.
- Do problem 8.14 of Law and Kelton.