

a)

$$X \sim \text{Unif}(7, 12)$$

$$E(X) = 9,5$$

$$V(X) = \frac{25}{12}$$

$$f_X(x) = \frac{1}{5}, 7 \leq x \leq 12$$

$$P(X > 11) = \int_{11}^{12} \frac{1}{5} dx = \frac{1}{5} //$$

b)

$$Y \sim \text{Bin}(20, \frac{1}{5})$$

$$P(Y \geq 3) = 1 - P(Y < 3) = 1 - 0,2061 = 0,7939$$

$$c) Z \sim \sum_{i=1}^{100} X = 100X$$

Por TLC aproximamos a normal

$$P(Z > 1100)$$

$$P(Z > 1100) = 1 - P(Z \leq 1100) =$$

$$E(Z) = 100 E(X) = 950$$

$$= 1 - P\left(\frac{Z - 950}{\frac{50}{\sqrt{12}}} < \frac{1100 - 950}{\frac{50}{\sqrt{12}}}\right) = 1 - \Phi(3\sqrt{12}) \approx 0 //$$

$$V(Z) = 100 \cdot \frac{25}{12}$$

$$\sigma = \sqrt{V(Z)} = \frac{50}{\sqrt{12}}$$