1. Find the expected value and variance of a continuous distribution with follwing probability density:

$$f(x) = \begin{cases} 0.3 & 0 < x < 1 \\ 0.7 & 1 < x < 2 \\ 0 & o.w \end{cases}$$

2. X has a continuous distribution with the following *pdf*.

$$f(x) = \begin{cases} c \exp(-2x) & 0 < x < \infty \\ 0 & o.w \end{cases}$$

   (a) Find c such that $f(x)$ is a pdf.

   (b) Find $P(X \geq 5)$

   (c) Find the $E(X)$

3. Suppose that X is a NOrmal random variable with mean $\mu = 10.2$ and standard deviation $\sigma = 0.7$. Evaluate the following probabilities:

(a) $P(X \leq 10.1)$

(b) $P(9.0 < X \leq 10.3)$

(c) $P(|X - 10.2| \leq 0.25)$

Find numbers $\#$ such that the following statement s about X are true:

(a) $P(|X - 10.2| \geq \#) = 0.8$

(b) $P(X < \#) = 0.8$