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 $P(X \ge 5)$
- (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) $P(X \le 10.1)$

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

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

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

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

(b) P(X < #) = 0.8