Problem 1

Let $X$ be a uniform random variable on the interval 0 to 30, i.e. $X \sim U(0, 30)$. What is the probability that $X$ is between 12 and 24? Also, draw the picture and shade in the area corresponding to the probability.

Problem 2

Let $X$ be a uniform random variable on the interval 0 to 30, i.e. $X \sim U(0, 30)$. What is the expected value and standard deviation of $X$?
Problem 3

Let $X$ be a uniform random variable on the interval 0 to 30, i.e. $X \sim U(0, 30)$. What is the probability that $X$ is between 12 and 24 given that we know $X$ is larger than 10? Also, draw the picture and shade in the area corresponding to the probability.

Problem 4

Let $X$ be a uniform random variable on the interval 0 to 30, i.e. $X \sim U(0, 30)$. What value of $k$ corresponds to the 44th percentile?
Problem 5

Let $X$ be an exponential random variable with $m = 0.25$, i.e. $X \sim \text{Exp}(0.25)$. What is the probability that $X$ is between 2 and 6?

Problem 6

Let $X$ be an exponential random variable with $m = 0.25$, i.e. $X \sim \text{Exp}(0.25)$. What is the probability that $X$ is less than 6?
Problem 7

Let $X$ be an exponential random variable with $m = 0.25$, i.e. $X \sim \text{Exp}(0.25)$. What value of $k$ corresponds to the $44^{\text{th}}$ percentile?