1. **Find , ,  if a random variable  is given by its density function, such that (25 points)**

$f\left(x\right)=0$, if $x\leq 0$

$f\left(x\right)=\frac{3}{8}x^{2}$, if $0<x\leq 2$

$f\left(x\right)=0$, if $x>2$

1. **Let  be given by its distribution function F(x), such that**

**F(x) = 0 if x ≤ 0** **(25 points)**

**F(x) =** $\frac{x^{2}}{4}$ **if 0<x≤2**

**F(x) =1 if x>2**

1. **Graph the distribution function **
2. **Graph the density function**
3. **Find ,, **
4. **A random variable  is distributed normally with E(X) = 8 and σ(X) =3** $σ\left(X\right)=2$**. Find P(9≤X<11). (5 points)**
5. **The distribution of the width of a standard piece of computer paper is normal with an expectation of 8.5 inches and the standard deviation of 0.2 inch. (10 points)**
6. **Find the probability that the width of any given piece of computer paper is between 8.40 and 8.55.**
7. **Find the probability that the width of any given piece of computer paper is less than 8.35.**
8. **Find the probability that the width of any given piece of computer paper is greater than 8.6.**
9. **The density function of a random variable  is given by**

$$f\left(x\right)= \frac{1}{7\sqrt{2π}}e^{-\frac{(x+3.6)^{2}}{98}}$$

**Find its (a) math expectation, (b) variance and (c) distribution function.**

1. **points)**
2. **Find the density function of a normally distributed random variable, if E(X) = 7.8 and σ(X) = 4.1 (5 points)**
3. **It’s known that a random variable  is distributed normally with E(X) = 3**

 **and it’s also known that p(0≤X≤1)+p(5≤X≤6) = 0.6. Find p(p(5≤X≤6). (20 points)**