In problem 1 use the Normal Distribution to answer

5pts   1a) Find P (Z < -1.39)

5pts   1b) Find P (-2.46 $\leq$ Z $\leq$ 1.93)

5pts   1c) Find P (Z > -1.17)

5pts   1d) Find P (0.81 < Z < 2.81)

5pts   1e) Find Z_0 such that P (-1.16 < Z < Z_0) = 0.7345

5pts 1f) Find Z_0 such that P($Z_0 \leq$ Z $\leq$ 2.48) = 0.9538

5pts 1g) Find Z_0 such that P(-$Z_0 \leq$ Z $\leq Z_0$) = 0.9854

10pts 2. A machine used to regulate the amount of sugar dispensed to make a new soda can be set
        so that it dispenses μ grams on the average, of sugar per liter of soda. The amount of
        sugar dispensed is Normally distributed with a standard deviation 0.50. If more than 12.5
        grams of sugar is dispensed to make a liter of soda it will be considered too sweet
        (unacceptable). Determine the setting of μ so that no more than 8% of the sodas
        are unacceptable.

10pts 3. To check the effectiveness of a new production process 2,000 photoflash devices
        were randomly selected from a very large(infinite) number that had been produced.
        If the process produces 6% defectives answer the following.

     a) Show that it is appropriate to approximate the probability of x (the number of defectives)
        with a normal distribution.

     b) Find the approximate probability that the number of defectives is between 110 and 138
        inclusively.

4. Due to the increased marketing and supply costs a bakery has decided to reduce the maximum
   thickness of its rolled piecrust dough to approximately 0.25 inch. However, the pie crust roller
   used by the bakery, rolls a random thickness of 0.20 to 0.30 inch. Let x = the thickness of the
   rolled dough and assume a uniform distribution .
 3pts a) Find f (x)

 4pts b) Find the mean thickness and standard deviation for the rolled dough.

 3pts c) Find $P(0.23 < x < 0.29)$

 4pts d) Find **a** so $P(0.21 < x < a) = 0.60$

5pts 5. Suppose x has an exponential distribution with $\theta = 2.2$ find the following probability
   $P(x \geq 1.45)$

8pts 6. Suppose the time a customer will wait in line at PNC bank is exponentially distributed with
   mean 4.0 minutes .What is the probability that a customer would be in line at most 5
   minutes?

5pts 7. A random sample of n = 225 observations is to be drawn from a large population
   with mean 600 and variance 100. Give the mean and standard deviation of the repeated
   sampling distribution of $\bar{x}$.

8pts 8.Consider a population consisting of the measurements 6, 12, 18 and described by
   the following probability distribution.

x	6	12	18
p(x	1/3	1/3	1/3

a random sample of n = 3 measurements
is selected from the population.

  a) Find the sampling distribution of the sample mean, $\bar{x}$.

 b) Determine whether or not the sample median, m, is an unbiased estimator of μ in this situation.
    [Be careful here you need a different table than part a of this problem]

5pts 9. A local bank reported to the federal government that 6,144 savings accounts have a mean balance
     of $7,500 and a standard deviation of $390. Government auditors have asked to randomly select
     169 of the bank accounts in order to assess the reliability of the mean balance reported by the
     bank. The auditors say they will certify the bank's report only if the sample mean balance is
     within $60 of the reported mean balance. What is the probability the auditors will certify the
     bank's report?(use the sampling distribution formulas here)