Part E:Must show all your work step by step in order to receive the full credit; Excel is not allowed. (41-53)
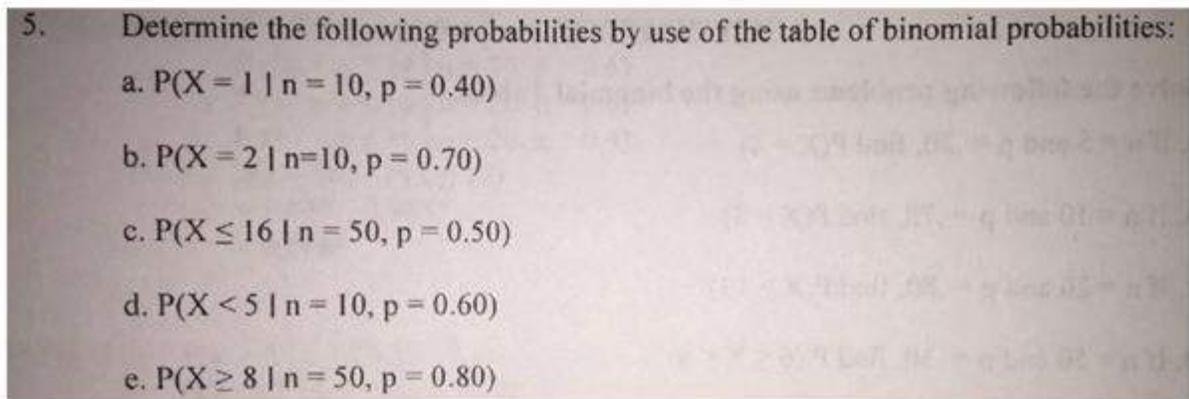
30. Ten trials are conducted in a Bernoulli process in which the probability of success in a given trail is 0.4. If x = the number of successes, determine the following.

a) E(x)	b)σ_x
c) $P\ (x = 5)$	d) $P\ (4 \leq x \leq 8)$
e) $P\ (x > 4)$	

31. Work problem number 5 on page 6-14 (a-e).

5. Determine the following probabilities by use of the table of binomial probabilities:

a. $P(X = 1 \mid n = 10, p = 0.40)$

b. $P(X = 2 \mid n=10, p = 0.70)$

c. $P(X \leq 16 \mid n = 50, p = 0.50)$

d. $P(X < 5 \mid n = 10, p = 0.60)$

e. $P(X \geq 8 \mid n = 50, p = 0.80)$

32. Work problem number 9 on page 6-28 (a-f).

9.*   A lopsided coin provides a 60% chance of a head on each toss. If the coin is tossed
20 times, determine the probabilities for obtaining the following number of heads.
a) Less than or equal to 8
b) Equal to 9
c) Less than 15
d) Greater than or equal to 12
e) Greater than 13
f) Between 8 and 14

33. Use problem number 4 on page 6-22 to fill in the table and answer the following questions (a-c).

6-22

Dr. Arize's Class Notes

4. Suppose 20% of the people in a city prefer Pepsi-Cola as their soft drink of choice. If a random sample of 6 people is chosen, the number of Pepsi drinkers could vary from 0 to 6. Shown here are the possible numbers of Pepsi drinkers occurring in the sample. Use the data to determine the mean number of Pepsi drinkers in a sample of 6 people in the city and compute the standard deviation.

Number of Pepsi Drinkers	Probability
0	0.373
1	0.247
2	0.019
3	0.211
4	0.002
5	0.118
6	0.03

5. Determine the mean, the variance, and the standard deviation of the following discrete distribution:

x	P(X=x)
0	0.0014

34. Work problem number 5 on page 7-23 (a-f).(**Please draw the graph)

5. Find a Z score, call it Zo, such that:
   a. $P(Z \geq Zo) = 0.5$ b. $P(Z \geq Zo) = 0.025$ c. $P(Z \leq Zo) = 0.025$
   d. $P(Z \geq Zo) = 0.0228$ e. $P(0 \leq Z \leq Zo) = 0.4803$ f. $P(Z < Zo) = 0.0401$

(**Please draw the graph)

35. Work problem number 9 on page 7-47 (a-f). (** Please draw the graph)

9. Find x_0 from the following probabilities: if $\mu = 160$, $\sigma = 16$

   a) $P(X > x_0) = 0.8770$
   b) $P(X < x_0) = 0.12$
   c) $P(X < x_0) = 0.97$
   d) $P(136 \leq X \leq x_0) = 0.4808$
   e) $P(x_0 \leq X \leq 204) = 0.8185$
   f) $P(180 \leq X \leq x_0) = 0.0919$

(** Please draw the graph)

36. Find the following probabilities:(**Please draw the graph)

	Show your work	Please draw graph
a.	$P(-1.4 < Z < 0.6)$	
b.	$P(Z > -1.44)$	

c.	$P(Z < 2.03)$	
d.	$P(Z > 1.67)$	
e.	$P(Z < 2.84)$	
f.	$P(1.14 < Z < 2.43)$	

37. Find the Z scores for the following normal distribution problems.(** Please draw the graph)

38.

	Show your work	**Please draw graph**
a.	$\mu = 604$, $\sigma = 56.8$, $P(X \leq 635)$	

b.	$\mu = 48$, $\sigma^2 = 144$, $P(X < 20)$	
c.	$\mu = 111$, $\sigma = 33.8$, $P(100 \le X \le 150)$	
d.	$\mu = 264$, $\sigma^2 = 118.81$, $P(250 < X < 255)$	
e.	$\mu = 37$, $\sigma = 4.35$, $P(X > 35)$	
f.	$\mu = 156$, $\sigma = 11.4$, $P(X \ge 170)$	

39. Work problem on number 11 (a - f) on page 7-47 (a-f). (** Please draw the graph)

11. The random variable x has a normal distribution with $\mu = 75$ and $\sigma = 10$. Find the following probabilities:

    a) P (x ≤ 80)
    b) P (x ≥ 85)
    c) P (70 ≤ x ≤ 75)

    d) P (x > 80)
    e) P (x = 78)
    f) P (x ≤ 110)

(** Please draw the graph)

40. Work problem on number 3 on page 8-10.

3.   A random sample of 81 items is taken producing a sample mean of 47 and a sample standard deviation of 5.89. Construct a 90% confidence interval to estimate the population mean.

41. Work problem on number 12 on page 8-11.

12.   Consider the following data drawn from a normal distribution population:

        4, 8, 12, 11, 14, 6, 12, 8, 9, 5

    Construct a 90% confidence interval for the population mean.

42. Consider the following hypothesis test
        H_o: $\mu \geq 10$
        H_a: $\mu < 10$
    A sample of 50 provides a sample mean of 9.46 and sample variation of 4.

43. Consider the following data drawn from a normal distribution population:

        4   8   12   11   14   6   12   8   9   5
    Construct 95% confidence interval using the above information and answer the following questions.