MAT 114 Fall 2002 Test 2 Name:

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Hours: MWF 11:20 – 12:20 MW 1:40 – 2:40

Please show all your work, write neatly and box your answer.Round your answers to 2 decimal places.

1. (8pts) Consider the following data: 1,3,3,1,7,3,1,5,3. Find

a. the mean

b. the standard deviation

2. (8pts) Consider the following data: 2,3,4,6,2,3,5,1,3

a. the five number summary

b. the box plot

3. (7pts) The monthly salaries in a company are normally distributed. The mean salary is \$3200 with standard deviation \$600. Approximately what percentage of the employees earn more than \$2960 a month?
Where appropriate, you may use the following abbreviated table of z-scores and percentiles.

z-score	-3.0	-2.0	-1.5	-1.0	-0.9	-0.8	-0.7	-0.6	-0.5
percentile	0.13	2.28	6.68	15.87	18.41	21.19	24.20	27.43	30.85

z-score	-0.4	-0.3	-0.2	-0.1	0.0	0.1	0.2	0.3	0.4
percentile	34.46	38.21	42.07	46.02	50.00	53.98	57.93	61.79	65.54

z-score	0.5	0.6	0.7	0.8	0.9	1.0	1.5	2.0	3.0
percentile	69.15	72.57	75.80	78.81	81.59	84.13	93.32	97.72	99.87

4. (7pts) What is the probability of obtaining a sum of 4 with a roll of three dice?

5. (7pts) There are 3 red and 5 blue M&M's in a box. We randomly eat two of them. What is the probability of picking two different colors?

6. (7pts) It costs $3 to play the following game. We roll a die. If the number on the die is odd then we win $4. If the number on the die is 6 then we win $6. What is the expected value of our win? Should we play this game?

7. (8pts) Explain the following:
a. Placebo effect.

b. Double blinded experiment.

8. (7pts) We roll a die 5 times. What is the probability of having at least one 6?

9. (6pts) The probability of event A is 0.4. What is the probability of the opposite event $S \setminus A$?

10. (7pts) There are 9 different toppings in a pizza shop. How many 3-toping pizza can be made if a toping can be chosen only once?

11. (7pts) There are 11 different flavors and 2 different cones in an icecream shop. How many 3-scoop cones can be made if we do not want the same flavor more than once?

12. (7pts) How many 5 digit numbers are there that do not have the same digit twice?

13. (7pts) The probability of event A is 0.4. What are the odds of A?

14. (7pts) We flip a coin 5 times. What is the probability of having 5 heads?