AFM

Final Assignment

PROBABILITY AND STATISTICS

1. IF THE PROBABILITY OF IT RAINING IS 7/19. WHAT IS THE ODDS THAT IT WILL NOT RAIN?

2. THERE ARE 13 CONTESTANTS IN A HALLOWEEN CONTEST. HOW MANY DIFFERENT WAYS CAN THE CONTESTANTS FINISH AS THE WINNER AND FIRST AND SECOND RUNNER-UP?

3. A GROUP OF 15 PEOPLE NEED TO FORM A LINE. THE LINE WILL CONSIST OF EXACTLY 10 PEOPLE. PERSON X AND Y HAVE TO BE EITHER 5TH OR 6TH IN LINE. HOW MANY DIFFERENT ORDERS ARE POSSIBLE?

4. A TOWN HAS 780 HOUSEHOLD. THE NUMBER OF PEOPLE PER HOUSEHOLD IS NORMALLY DISTRIBUTED WITH A MEAN OF 3.67 AND STANDARD DEVIATION OF 0.34. APPROXIMATELY HOW MANY HOUSEHOLDS HAVE BETWEEN 2.99 AND 4.35 PEOPLE?

5. IF A BAG HAS 8 RED MARBLES, 12 GREEN MARBLES, AND 12 BLUE MARBLES. WHAT ARE THE ODDS YOU WILL PICK OUT A MARBLE THAT IS NOT BLUE?

6. A SOCCER COACH HAS 15 OFFENSIVE PLAYERS THAT HE MUST CHOOSE 7 TO START THE MATCH, 12 DEFENSIVE PLAYERS THAT HE NEEDS 3, AND 2 GOALIES THAT HE ONLY NEED ONE. HOW MANY DIFFERENT LINE-UPS COULD HE DEVELOP?

7. THE SCORES ON A RECENT TEST ARE NORMALLY DISTRIBUTED. JOE'S TEST SCORE OF A 73 WAS 1 STANDARD DEVIATION BELOW THE MEAN. JENNA'S TEST SCORE OF 99 WAS 3 STANDARD DEVIATIONS ABOVE THE MEAN. WHAT ARE THE MEAN AND STANDARD DEVIATION FOR THE TEST SCORE DISTRIBUTION? *(No Rounding)*

8. IF THE PROBABILITY OF GIVING BIRTH TO A GIRL IS O.49, WHAT IS THE APPROXIMATE PROBABILITY OF GIVING BIRTH TO 3 CONSECUTIVE BOYS? *(Write as a percent to the nearest tenths)*

9. HOW MANY *MORE WAYS* CAN 13 JUNIORS RUNNING FOR THE POSITIONS OF SECRETARY, PRESIDENT, AND TREASURER BE SELECTED WHEN COMPARED TO 9 SOPHOMORES RUNNING FOR 5 IDENTICAL POSITIONS OF CLASS REPRESENTATIVE?

HERE ARE THE SCORES FOR A RECENT TEST IN A COLLEGE MATH COURSE.

90 65 85 99 65 77 13 88 76 98 85 88
100 97 77 83 68 92 83 99 74 84 85 100

FIND THE FOLLOWING AND ROUND ALL ANSWERS TO THE NEAREST WHOLE NUMBER:

10. FIND THE MEAN.

11. FIND THE MEDIAN.

12. FIND THE MODE.

13. FIND THE RANGE.

14 FIND THE OUTLIER.

15. FIND THE STANDARD DEVIATION.

16. FIND THE VARIANCE.

page [2]

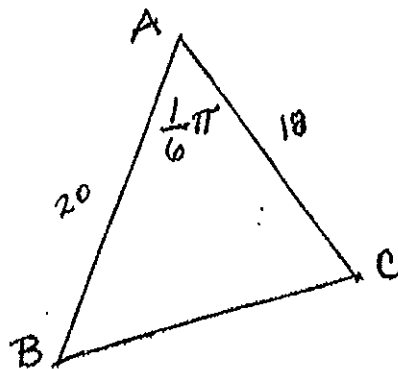17. WHAT PERCENT OF THE SCORES FALL WITHIN ONE STANDARD DEVIATION OF THE MEAN?

18. WHAT IS THE <u>MIDDLE TERM</u> FOR THE EXPANSION OF $(X^3 + 4)^{12}$?

19. ABBY TOOK A 10 QUESTION MULTIPLE CHOICE QUIZ. SUPPOSE THAT HER PROBABILITY OF CORRECTLY ANSWERING ANY QUESTION IS 0.80. WHAT IS ABBY'S PROBABILITY OF INCORRECTLY ANSWERING EXACTLY 3 QUESTIONS ON THE QUIZ? *(Nearest tenths)*

20. HOW MANY DIFFERENT WAYS CAN YOU "SCRAMBLE UP" THE LETTERS IN THE WORD "THANKSGIVING"?

21. A BOX CONTAINS ONE OF EACH OF THE FOLLOWING: $1, $10, $20, $100. YOU PAY $5 TO REACH IN THE BOX AND DRAW OUT ONE BILL. WHAT IS YOUR EXPECTED VALUE? (DON'T FORGET-YOU PAID TO PLAY)

22. FIND THE LENGTH OF SIDE a.
    (tenths place)

23. <u>SOLVE:</u>

$$\frac{1}{2}\log_5 25 + \frac{1}{2}\log_5 X = 2\log_5 3 - \log_5 3$$

page 3