KEY

Math 111 FINAL (SET A)
20 X 5 = 100 points

1. Find the correct example of Nominal, Ordinal, Interval, and Ratio-level, respectively:
(a) Height, SAT score, Grade (A, B, C), Zip code **(B) Zip code, Grade (A, B, C), SAT score, Height** © Grade (A, B, C), Zip code, SAT score, Height

2. These data represent the record high temperatures in Celsius. Find width using 7 classes, 112 100 127 120 140 118 105 110 109 112 110 118 117 116 118 122 114 114 105 109 107 112 114 115 118 117 118 122 106 110 116 108 110 121 113 120 119 111 104 111 120 113 120 117 105 110 118 112 114 114
(a) 4 **(b) 6** (c)8 (d) 10

3. Florida's age distribution has mean value $\mu = 39.2$ and standard deviation $\sigma = 24.8$ (measured in years). Use Chebyshev's theorem to find an interval such that the age in years of at least 75% of Florida's population is contained within that interval
(a) [1,80] **(b) [0,88]** © [1,88] (d) [80,88]

4. The mean value of the scores in a Statistics exam was 85 with a standard deviation of 4. Find an interval that contains at least 75% of the scores in that exam
(a) [77,91] (b) [77,92] © **[77,93]** (d) [77,90]

5. How many three-letter words can be formed of 21 consonants if Repetitions are allowed?
(a) 6261 (b) 7261 © 8261 **(d) 9261**

6. Given P(E) = 0.7, P(F) = 0.35, and P(F|E) = 0.25 find P(E and F)
(a) **.175** (B) .275 © .375 (d) .475

7. A researcher wishes to estimate the number of days it takes an automobile dealer to sell a Chevrolet Aveo. A sample of 50 cars had a mean time on the dealer's lot of 54 days. Assume the population standard deviation to be 6.0 days. Find the best point estimate of the population mean and the 95% confidence interval of the population mean.
(a) 44 ± 1.7 (B) 48 ± 1.7 © 52 ± 1.7 (d) **54 ± 1.7**

8. An urn contains three yellow, four green, and five blue balls. Two balls are randomly drawn without replacement. Find the probability that the first ball is green and the second yellow.
(a) 0.01 (B) 0.06 © 0.07 **(d) 0.09**

9. Three cards are randomly drawn from a standard 52 card deck without replacement. Find the probability that there is one spade, one club, and one diamond.
(a) **0.099** (B) 0.299 © 0.499 (d) 0.699

10. Most of the time, a medical test is able to correctly indicate if a person has a condition. However, some of the time, there are false positives (it indicates the condition is present when it is not) or false negatives (it indicates the condition is not present when it is there). Use the table below to determine the probabilities for a randomly selected person from the population.

	Condition present	Condition not present	Row total
Test result +	125	10	135
Test result -	15	50	65

Column Total	140	60	200

What is the probability of either a false positive or a false negative?

(a) .625 (B) .425 © **.125** (d) .225

11. If 30% of the people in a community use the Library in one year, find the probability that in a random sample of 15 people. At least 5 use the Library

(a) 0.385 **(B) 0.485** © 0.585 (d) 0.685

12. A basketball player makes 70% of the free throws he shoots. What is the probability that he will make more than 7 throws. If he tries 15 free throws?

(a) 0.151 (B) 0.451 © 0.651 **(d) 0.951**

13. Find the area under the standard normal curve between z = −2.74 and z = 2.33.

(a) .287 (B) .987 © .787 (d) .487

14. Check the following data set for outliers. 5, 6, 12, 13, 15, 18, 22, 50

(a) data value(s) that fall outside the interval from 2.5 to 36.5
(b) data value(s) that fall outside the interval from 7.5 to 36.5
(c) data value(s) that fall outside the interval from 4.5 to 36.5
(d) data value(s) that fall outside the interval from 3.5 to 36.5

15. Find the mean of the number of spots that appear when a die is tossed.

(a) 1.5 **(b) 3.5** © 3.5 (d) 4.5

16. A coin is tossed 4 times. Find the standard deviation of the number of heads that will be obtained.

(a) **1** (B) 2 © 3 (d) 3.5

17. Find Pearson's index PI of skewness for data, 1, 3, 11

(a) **1.13** (b) 2.13 © 3.13 (d) 4.13

18. find the critical value : A left-tailed test with a 0.10

(a) **-1.28** (B) -2.28 © -3.28 (d) +1.28

19. Professor Bari gave an 100-point quiz to a small class of four students. The results of the quiz were 2, 6, 4, and 8.Find $\sigma_{\bar{x}}$ by taking all samples of size 2 with replacement

(a) **1.581** (B) 2.581(c) 3.581 (d) - 1.581

20. A researcher claims that the average cost of men's athletic shoes is less than $80. He selects a random sample of 36 pairs of shoes from a catalog and finds the following costs (in dollars). (The costs have been rounded to the nearest dollar.) Is there enough evidence to support the researcher's claim at alpha = 0.10? Assume σ = 19.2.

60, 70, 75, 55, 80, 55, 50, 40, 80, 70, 50, 95, 120, 90, 75, 85, 80, 60,
110, 65, 80, 85, 85, 45, 75, 60, 90, 90, 60, 95, 110, 85, 45, 90, 70, 70

Identify what type of test it is

(a) Left tail test (2) Right Tail Test © Double tail test (d) T-test

---