

Elementary Statistics
Test 1
Spring 2004

Name:.....
5+12+5+12+10+12+12+6+5+6+5+5+5

Show your work!

1 State whether each of the following variables is nominal, ordinal, interval, or ratio.

- (a) Nationality
- (b) Earnings per share
- (c) Blood glucose level (high, average, low)
- (d) Temperature
- (e) Soft-drink size (small, medium, large)

2 Consider the following data.

3.5, 2.1, 2.7, 2.9, 3.2, 3.8, 2.7, 2.4, 3.2, 2.5

(a) Construct a **double** stem and leaf display.

$n =$
Stem Unit =
Leaf Unit =

(b) Find the mean.

(c) Find the mode.

- 3 Two treatments were given to three groups of lab mice to study their effect on mice liver. The following table summarizes the results.

Group	Sample Size	Mean Liver Weight (g)
1	10	2.84
2	8	2.07

Find the overall mean weight.

- 4 The following table provides 3-year annualized returns in 79 high-risk funds.

Class	Frequency
-30.0 to -20.01	1
-20.0 to -10.01	8
-10.00 to -0.01	24
0.0 to 9.99	16
10.00 to 19.99	15
20.00 to 29.99	12
30.00 to 39.99	2
40.00 to 49.99	1

- (a) Find the class mark of the class 0.00 – 9.99
(Use 3 decimal places)
- (b) Find the class **boundaries** (there are two) of the class 0.00 – 9.99
(Use 3 decimal places)
- (c) Find the class interval.

- 5 Fill in the **blanks** and then draw a **histogram** for following data.

Class	Frequency	Relative Frequency
60 – 69.9	1	
70 – 79.9	8	
80 – 89.9	12	
90 – 99.9	18	
100 – 109.9	9	
110 – 119.9	2	

- 6 The pulses of twelve elementary statistics students were measured 24 hours after the first exam. Here are the data:

110, 74, 74, 70, 67, 76, 64, 62, 78, 100, 67, 70

- Find the five number summary. _____
- Find the inter quartile range (IQR).
- Calculate the value of the right inner fence.
- Calculate the value of the right outer fence.
- Calculate the value of the left inner fence.
- Calculate the value of the left outer fence.
- Draw a box plot. Include the box, median, inner fences, outer fences, mild outliers, serious outliers, etc.

7 Closing price of stock A during the last five days is as follows:

1.90 2.05 3.35 2.33 2.23

- (a) Find the range. _____
- (b) Find the sample variance. _____
- (c) Find the sample standard deviation. _____

(Use 3 decimals for calculations and then write your answer in the blanks)

8 On five tests, one student averaged 68.3 with a standard deviation of 3.8, while another student averaged 78.8 with a standard deviation of 3.7. Which student is **relatively** more consistent?

Answer: _____

- 9 A student committee must consist of three juniors and four seniors. If seven juniors and eight seniors are willing to serve on the committee, in how many different ways can it be selected? **Simplify the answer.**

Answer: _____

- 10 If two cards are drawn randomly from a well-shuffled pack of 52 playing cards, What is the probability of getting two spades?

Answer: _____

- 11 Match the following symbols with the definitions.

σ^2	μ	\bar{X}	\tilde{X}	s
()	()	()	()	()

- | | |
|-------------------------|-----------------------------------|
| (a) Sample mean | (g) Weighted mean |
| (b) Sample variance | (h) Summation notation |
| (c) Population mean | (i) Sample standard deviation |
| (d) Population variance | (j) Population standard deviation |
| (e) Median | (k) First quartile |
| (f) Grand mean | (l) Other |

<i>Column1</i>	
Mean	4.18
Standard Error	0.860594
Median	4.01
Mode	1.1
Standard Deviation	2.721438
Sample Variance	7.406222
Kurtosis	-1.25257
Skewness	0.398535
Range	7.3
Minimum	1.1
Maximum	8.4
Sum	41.8
Count	10

Find the following using the above EXCEL output.

(a) \bar{X}

(b) s

(c) $\sum x_i$

(d) n

(e) \tilde{X}

- 13 In a large city the average retail price of a head of a lettuce is \$1.09 with a standard deviation of \$0.15 and the average retail price of a pound of tomatoes is \$0.88 with a standard deviation of \$0.06.

If a certain food market charges \$1.39 for a head of lettuce and \$0.99 for a pound of tomatoes which of these food items is **relatively** over priced?