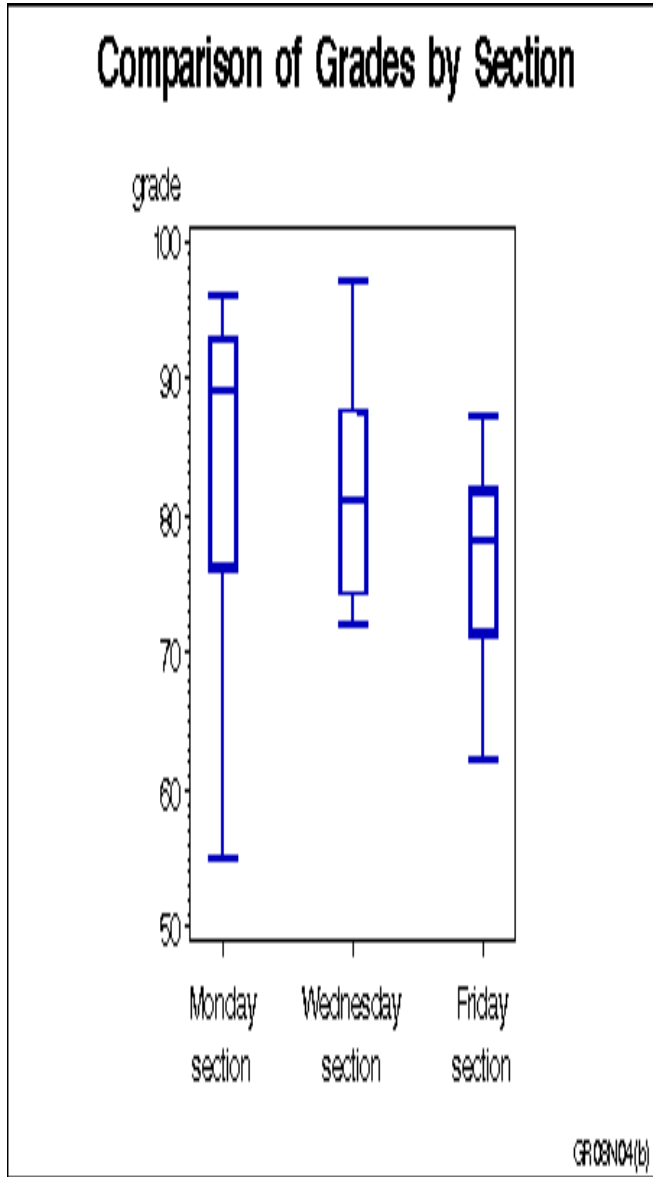


(1) For the vertical boxplots shown below, draw three histograms that *roughly* show the three distributions.



Monday Section

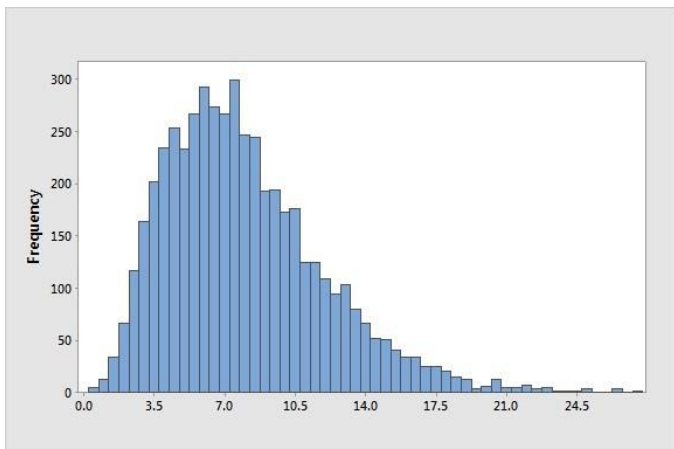
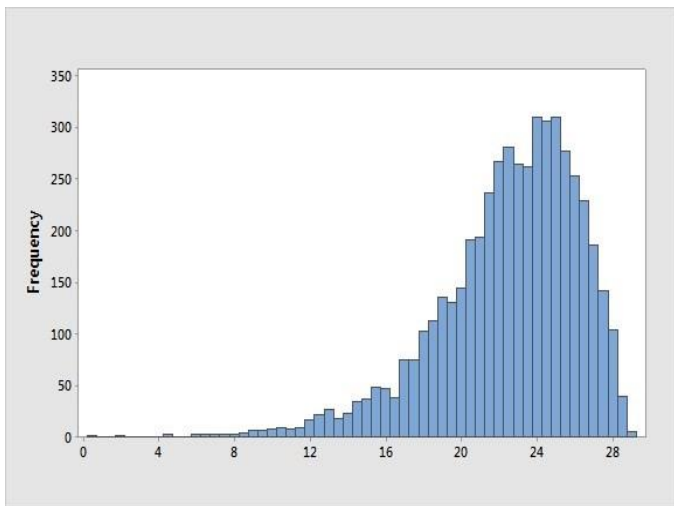
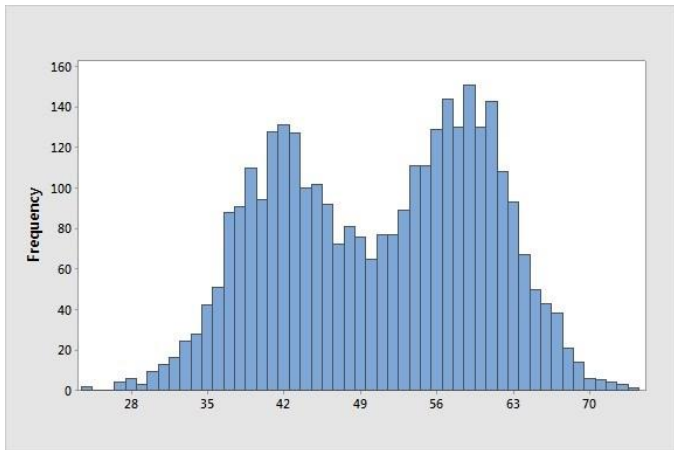
Wednesday Section

Friday Section

(2) Circle the best description of each of the three distributions' shapes from the boxplots above.

- | | | | |
|-------------------|-------------|-----------|--------------|
| Monday: | Skewed Left | Symmetric | Skewed Right |
| Wednesday: | Skewed Left | Symmetric | Skewed Right |
| Friday: | Skewed Left | Symmetric | Skewed Right |

(3) Draw *rough* boxplots that represents each of the histograms shown here:



(4) For the dataset of Math 175 COST data . . .

1	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2.50	\$5.00	\$7.00	\$10.00	\$15.00	\$20.00
2	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2.50	\$5.00	\$7.00	\$10.00	\$15.00	\$20.00
3	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2.60	\$5.00	\$8.00	\$10.00	\$15.00	\$20.00
4	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3.00	\$5.00	\$8.00	\$10.00	\$15.00	\$20.00
5	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3.00	\$5.00	\$8.00	\$10.00	\$15.00	\$20.00
6	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3.00	\$5.00	\$8.00	\$10.00	\$15.00	\$20.00
7	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3.00	\$5.00	\$8.95	\$10.00	\$15.00	\$20.00
8	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3.00	\$5.00	\$9.00	\$10.00	\$15.00	\$20.00
9	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3.50	\$5.00	\$9.00	\$10.00	\$15.00	\$22.00
10	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3.75	\$5.00	\$10.00	\$10.00	\$15.00	\$24.00
11	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$4.00	\$5.00	\$10.00	\$10.00	\$15.00	\$25.00
12	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$5.00	\$5.00	\$10.00	\$10.00	\$15.00	\$25.00
13	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$5.00	\$5.00	\$10.00	\$10.00	\$15.00	\$25.00
14	\$0.00	\$0.00	\$0.00	\$0.00	\$0.25	\$5.00	\$5.00	\$10.00	\$10.00	\$15.00	\$25.00
15	\$0.00	\$0.00	\$0.00	\$0.00	\$0.75	\$5.00	\$5.00	\$10.00	\$10.00	\$15.00	\$26.00
16	\$0.00	\$0.00	\$0.00	\$0.00	\$1.50	\$5.00	\$5.00	\$10.00	\$10.00	\$15.00	\$27.00
17	\$0.00	\$0.00	\$0.00	\$0.00	\$2.00	\$5.00	\$5.00	\$10.00	\$10.00	\$15.00	\$30.00
18	\$0.00	\$0.00	\$0.00	\$0.00	\$2.25	\$5.00	\$5.00	\$10.00	\$10.00	\$15.00	\$30.00
19	\$0.00	\$0.00	\$0.00	\$0.00	\$2.50	\$5.00	\$5.00	\$10.00	\$10.00	\$15.00	\$30.00
20	\$0.00	\$0.00	\$0.00	\$0.00	\$2.50	\$5.00	\$5.35	\$10.00	\$10.00	\$15.00	\$30.00
21	\$0.00	\$0.00	\$0.00	\$0.00	\$2.50	\$5.00	\$6.00	\$10.00	\$10.00	\$17.00	\$30.00
22	\$0.00	\$0.00	\$0.00	\$0.00	\$2.50	\$5.00	\$7.00	\$10.00	\$10.00	\$17.00	\$30.00
23	\$0.00	\$0.00	\$0.00	\$0.00	\$2.50	\$5.00	\$7.00	\$10.00	\$10.00	\$19.00	\$30.00
24	\$0.00	\$0.00	\$0.00	\$0.00	\$2.50	\$5.00	\$7.00	\$10.00	\$11.00	\$20.00	\$40.00
25	\$0.00	\$0.00	\$0.00	\$0.00	\$2.50	\$5.00	\$7.00	\$10.00	\$14.00	\$20.00	\$50.00
26											\$50.00
27						Mean:	\$8.14				\$60.00
28						Standard Deviation:	20.08				\$60.00
29											\$300.00

- The data point \$8.95 is the _____ percentile.
- The 45th percentile is _____.
- \$1.50 is _____ % of a standard deviation **above** / **below** the mean. (fill in the blank & circle one)
- The z -score for the value \$19.00 is _____.
- A cost of _____ would have a z -score of 2.25.
- Find the 5-Number Summary and determine which, if any, of the data in this set are outliers.
- Draw a modified boxplot for the data set in the space below.

EXAM I REVIEW

(5) True or False (circle):

- | | | |
|---|------|-------|
| a. In an experimental study, the control group is the group with no changes made to the independent variable | TRUE | FALSE |
| b. In an observational study, the control group is the group with no changes made to the independent variable | TRUE | FALSE |
| c. The median is the middle number in a dataset. | TRUE | FALSE |
| d. \bar{x} is the symbol used for population mean | TRUE | FALSE |
| e. The mean is always larger than the mode. | TRUE | FALSE |
| f. 75% of the data points are larger than Q_3 . | TRUE | FALSE |
| g. Every data point smaller than $(Q_1 - IQR)$ is an outlier. | TRUE | FALSE |
| h. If the 80 th percentile for a dataset of salary figures is \$100,000 then the 40 th percentile will be \$50,000. | TRUE | FALSE |
| i. If N is even, then Q2 is an actual data point. | TRUE | FALSE |
| j. In a distribution of z-scores, the mean is 1 and standard deviation is 0. | TRUE | FALSE |

(6) Fill in the blank cells in the table below and draw a relative frequency polygon next to it.

Boundaries		Midpoint	Frequency	Cumulative Frequency	Relative Frequency
0	11.5			2	
11.5	23			8	
23	34.5			12	
34.5	46			20	
46	57.5			30	
57.5	69			45	
69	80.5			61	
80.5	92			73	

(7) What is the shape of the frequency distribution above? (circle one)

Normal *Uniform* *Bimodal* *Skewed Left* *Skewed Right* *None of these*

(9) Back to that dataset of Math 175 COST data . . .

1	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2.50	\$5.00	\$7.00	\$10.00	\$15.00	\$20.00
2	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2.50	\$5.00	\$7.00	\$10.00	\$15.00	\$20.00
3	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2.60	\$5.00	\$8.00	\$10.00	\$15.00	\$20.00
4	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3.00	\$5.00	\$8.00	\$10.00	\$15.00	\$20.00
5	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3.00	\$5.00	\$8.00	\$10.00	\$15.00	\$20.00
6	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3.00	\$5.00	\$8.00	\$10.00	\$15.00	\$20.00
7	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3.00	\$5.00	\$8.95	\$10.00	\$15.00	\$20.00
8	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3.00	\$5.00	\$9.00	\$10.00	\$15.00	\$20.00
9	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3.50	\$5.00	\$9.00	\$10.00	\$15.00	\$22.00
10	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3.75	\$5.00	\$10.00	\$10.00	\$15.00	\$24.00
11	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$4.00	\$5.00	\$10.00	\$10.00	\$15.00	\$25.00
12	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$5.00	\$5.00	\$10.00	\$10.00	\$15.00	\$25.00
13	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$5.00	\$5.00	\$10.00	\$10.00	\$15.00	\$25.00
14	\$0.00	\$0.00	\$0.00	\$0.00	\$0.25	\$5.00	\$5.00	\$10.00	\$10.00	\$15.00	\$25.00
15	\$0.00	\$0.00	\$0.00	\$0.00	\$0.75	\$5.00	\$5.00	\$10.00	\$10.00	\$15.00	\$26.00
16	\$0.00	\$0.00	\$0.00	\$0.00	\$1.50	\$5.00	\$5.00	\$10.00	\$10.00	\$15.00	\$27.00
17	\$0.00	\$0.00	\$0.00	\$0.00	\$2.00	\$5.00	\$5.00	\$10.00	\$10.00	\$15.00	\$30.00
18	\$0.00	\$0.00	\$0.00	\$0.00	\$2.25	\$5.00	\$5.00	\$10.00	\$10.00	\$15.00	\$30.00
19	\$0.00	\$0.00	\$0.00	\$0.00	\$2.50	\$5.00	\$5.00	\$10.00	\$10.00	\$15.00	\$30.00
20	\$0.00	\$0.00	\$0.00	\$0.00	\$2.50	\$5.00	\$5.35	\$10.00	\$10.00	\$15.00	\$30.00
21	\$0.00	\$0.00	\$0.00	\$0.00	\$2.50	\$5.00	\$6.00	\$10.00	\$10.00	\$17.00	\$30.00
22	\$0.00	\$0.00	\$0.00	\$0.00	\$2.50	\$5.00	\$7.00	\$10.00	\$10.00	\$17.00	\$30.00
23	\$0.00	\$0.00	\$0.00	\$0.00	\$2.50	\$5.00	\$7.00	\$10.00	\$10.00	\$19.00	\$30.00
24	\$0.00	\$0.00	\$0.00	\$0.00	\$2.50	\$5.00	\$7.00	\$10.00	\$11.00	\$20.00	\$40.00
25	\$0.00	\$0.00	\$0.00	\$0.00	\$2.50	\$5.00	\$7.00	\$10.00	\$14.00	\$20.00	\$50.00
26											\$50.00
27					Mean:	\$8.14					\$60.00
28					Standard Deviation:	20.08					\$60.00
29											\$300.00

- What is the mode of the dataset?
- What is the median?
- If all outliers are ignored, what would be the mode of the dataset?
- If all outliers are ignored, what would be the median of the dataset?
- If all outliers are ignored, what is the mean of the dataset?
- What percentage of the data points are within one-and-three-quarters of a standard deviation of the mean?
- Does the answer to item f agree with Chebychev's Theorem?
Show the computations that confirm your response.