c. If your generated data should lead to the conclusion that the two population means are different, would this conclusion be correct or incorrect in reality? How do you know?

d. If part (a) is repeated 20 times, what is the probability that none of the hypothesis tests leads to rejection of the null hypothesis?

e. Repeat part (a) 20 times. How often was the null hypothesis of equal means rejected? Is this the result you expected?

from data TO DECISION

Critical Thinking: Ages of workers killed in the Triangle Factory fire

Listed below are the ages (years) of the 146 employees who perished in the Triangle Factory fire that occurred on March 25, 1911 in Manhattan (based on data from the Kheel Center and the *New York Times*). One factor contributing to the large number of deaths is that almost all exits were locked so that employees could be checked for theft when they finished work at the end of the day. That fire revealed grossly poor and unsafe working conditions that led to changes in building codes and labor laws.

Analyzing the Results

1. First *explore* the combined male and female ages using suitable statistics and graphs. What is the mean age? What are the minimum and maximum ages? What is the standard deviation of the ages? Are there any outliers? Describe the distribution of the ages.

2. Examination of the two lists shows that relatively few men perished in the fire. Treat the ages as sample data and determine whether there is sufficient evidence to support the claim that among the workers who perish in such circumstances, the majority are women.

3. Construct a 95% confidence interval estimate of the mean age of males and construct another 95% confidence interval estimate of the mean age of females. Compare the results.

4. Treat the ages as sample data and determine whether there is sufficient evidence to support the claim that female workers have a mean age that is less than that of male workers.

5. Treat the ages as sample data and determine whether there is sufficient evidence to support the claim that ages of males and females have different standard deviations.

6. Based on the preceding results, identify any particularly notable features of the data.

Males

38	19	30	24	23	23	19	18	19	33	17	22	33	25	20	23	22

Females

24	16	25	31	22	18	19	22	16	23	17	15	21	18	17	17	17	31	20	36
18	25	30	16	25	25	21	19	17	18	20	18	26	26	16	18	18	17	22	17
20	22	18	20	16	25	18	40	21	18	19	19	18	18	19	16	19	16	16	21
33	21	14	22	19	19	23	19	18	21	39	20	14	27	22	15	19	16	16	19
18	21	18	19	19	20	18	43	16	20	18	30	21	22	18	21	35	22	21	22
21	22	17	24	25	20	18	32	20	21	19	24	17	18	30	18	16	22	22	17
22	20	15	20	17	21	21	18	17											