CHAPTER 13 TEST

In Exercises 1–6, for the set of data 21, 37, 37, 39, 46, determine the

1. mean.
2. median.
3. mode.
4. midrange.
5. range.
6. standard deviation.

In Exercises 7–9, use the set of data

26	28	35	46	49	56
26	30	36	46	49	58
26	32	40	47	50	58
26	32	44	47	52	62
27	35	46	47	54	66

to construct

7. a frequency distribution; let the first class be 25–30.
8. a histogram of the frequency distribution.
9. a frequency polygon of the frequency distribution.

Statistics on Salaries In Exercises 10–16, use the following data on weekly salaries at Maxwell Mechanical Contractors.

Mean	$700	First quartile	$650
Median	$670	Third quartile	$705
Mode	$695	79th percentile	$712
Standard deviation	$40		

10. What is the most common salary?
11. What salary did half the employees exceed?
12. About what percent of employees' salaries exceeded $650?
13. About what percent of employees' salaries was less than $712?
14. If the company has 100 employees, what is the total weekly salary of all employees?
15. What salary represents one standard deviation above the mean?
16. What salary represents 1.5 standard deviations below the mean?

Mileage of 5-Year-Old Cars In Exercises 17–20, the mileage of 5-year-old cars is normally distributed with a mean of 75,000 and a standard deviation of 12,000 miles.

17. What percent of 5-year-old cars have mileage between 50,000 and 70,000 miles?
18. What percent of 5-year-old cars have mileage greater than 60,000 miles?
19. What percent of 5-year-old cars have mileage greater than 90,000 miles?
20. If a random sample of 300 five-year-old cars is selected, how many would have mileage between 60,000 and 70,000 miles?
21. *The Elderly U.S. Population* The following chart shows the percent of the U.S. population that was age 65 and over for the years 1970, 1980, 1990, 1995, and 2000, where the column labeled Year refers to the number of years since 1970.

Percent of U.S. Population Age 65 and Over

Year	Percent
0	9.8
10	11.3
20	12.5
25	12.8
30	12.4

Source: U.S. Bureau of the Census, U.S. Dept. of Commerce.

a) Construct a scatter diagram placing the year on the horizontal axis.
b) Use the scatter diagram in part (a) to determine whether you believe that a correlation exists between the year and the percent of the U.S. population age 65 and over. Explain.
c) Determine the correlation coefficient between the year and the percent of the U.S. population age 65 and over.
d) Determine whether a correlation exists at $\alpha = 0.05$.
e) Assuming that this trend continues, determine the equation of the line of best fit between the year and the percent of the U.S. population age 65 and over.
f) Use the equation in part (e) to predict the percent of the U.S. population age 65 and over in 2010, or 40 years after 1970.