1) Midland National Bank selected a sample of 40 student checking accounts. Below are their end-of-the-month balances.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| $404 | $74 | $234 | $149 | $279 | $215 | $123 | $55 | $43 | $321 |
| 87 | 234 | 68 | 489 | 57 | 185 | 141 | 758 | 72 | 863 |
| 703 | 125 | 350 | 440 | 37 | 252 | 27 | 521 | 302 | 127 |
| 968 | 712 | 503 | 489 | 327 | 608 | 358 | 425 | 303 | 203 |

a.) Tally the data into a frequency distribution using $100 as a class interval and $0 as the starting point.

b.) Draw a cumulative frequency polygon.

c.) The bank considers any student with an ending balance of $400 or more a preferred customer. Estimate the percentage of preferred customers.

d.) The bank is also considering a service charge to the lowest 10% of the ending balances. What would you recommend as the cutoff point between those who have to pay a service charge and those who do not?

2) Merrill Lynch recently completed a study regarding the size of online investment portfolios (stocks, bonds, mutual funds, and certificates of deposit) for a sample of clients in the 40- to 50-year-old age group. Listed following is the value of all the investments in thousands of dollars for the 70 participants in the study.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| $669.9 | $7.5 | $77.2 | $7.5 | $125.7 | $516.9 | $219.9 | $645.2 |
| 301.9 | 235.4 | 716.4 | 145.3 | 26.6 | 187.2 | 315.5 | 89.2 |
| 136.4 | 616.9 | 440.6 | 408.2 | 34.4 | 296.1 | 185.4 | 526.3 |
| 380.7 | 3.3 | 363.2 | 51.9 | 52.2 | 107.5 | 82.9 | 63.0 |
| 228.6 | 308.7 | 126.7 | 430.3 | 82.0 | 227.0 | 321.1 | 403.4 |
| 39.5 | 124.3 | 118.1 | 23.9 | 352.8 | 156.7 | 276.3 | 23.5 |
| 31.3 | 301.2 | 35.7 | 154.9 | 174.3 | 100.6 | 236..7 | 171.9 |
| 221.1 | 43.4 | 212.3 | 243.3 | 315.4 | 5.9 | 1002.2 | 171.7 |
| 295.7 | 437.0 | 87.8 | 302.1 | 268.1 | 899.5 |  |  |

a.) Organize the data into a frequency distribution. How many classes would you suggest? What value would you suggest for a class interval?

b.) Draw a histogram. Interpret your results.

3) Farming has changed from the early 1900s. In the early 20th century, machinery gradually replaced animal power. For example, in 1910 U.S. farms used 24.2 million horses and 3.2 million horses and mules. In 1920 there were over 6 million farms in the United States. Today there are less than 2 million. Listed below is the number of farms, in thousands, for each of the 50 states. Explain your findings.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 47 | 1 | 8 | 46 | 76 | 26 | 4 | 3 | 39 | 45 |
| 4 | 21 | 80 | 63 | 100 | 65 | 91 | 29 | 7 | 15 |
| 7 | 52 | 87 | 39 | 106 | 25 | 55 | 2 | 3 | 8 |
| 14 | 38 | 59 | 33 | 76 | 71 | 37 | 51 | 1 | 24 |
| 35 | 86 | 185 | 13 | 7 | 43 | 36 | 20 | 79 | 9 |