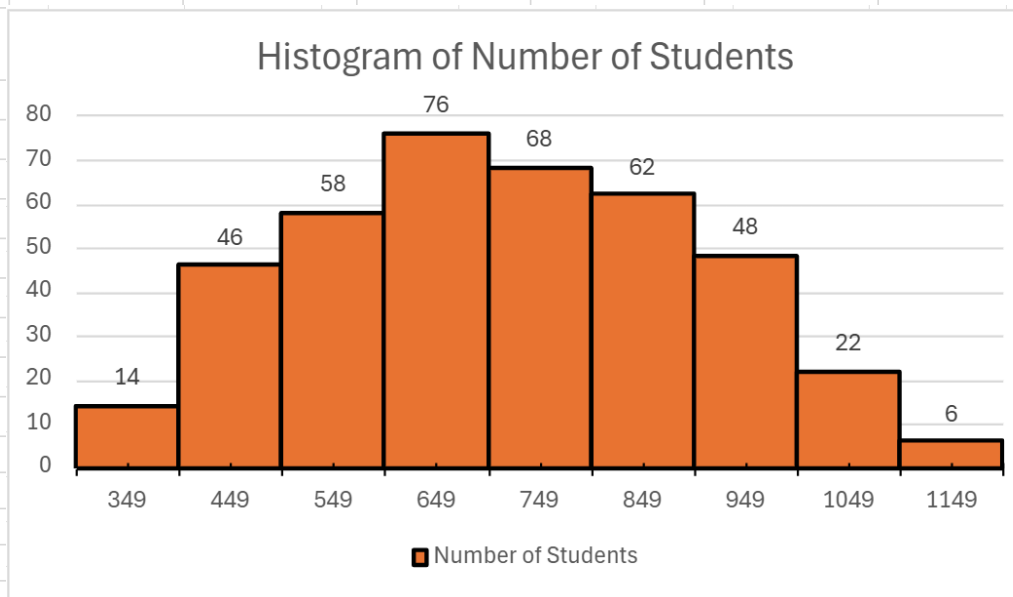


2.20: Table 2.14 shows the frequency distribution for the number of minutes per week spent watching TV by 400 junior high students. With reference to this table determine:

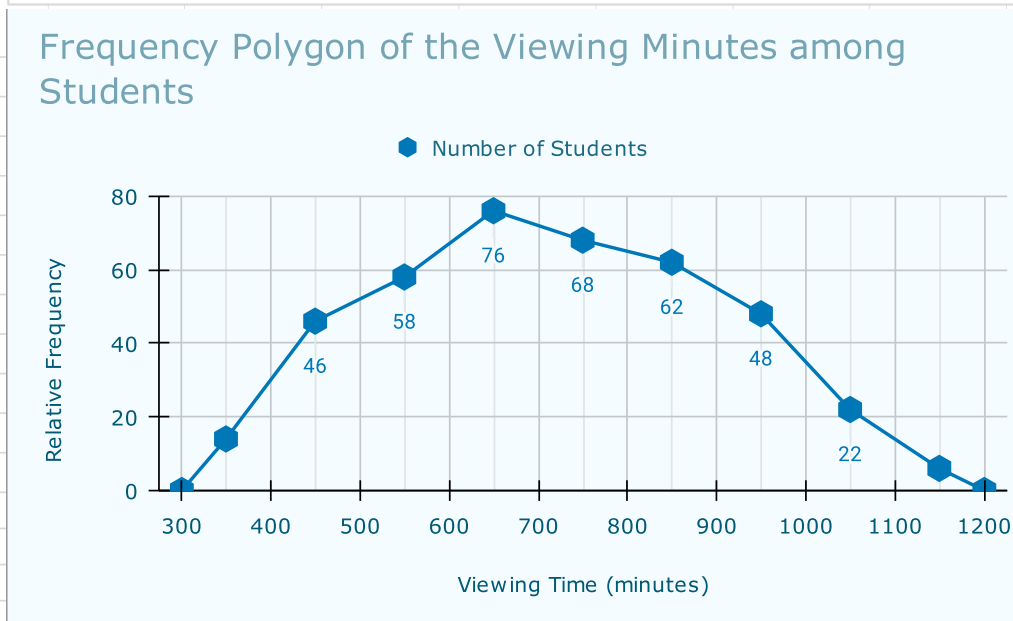
| Viewing Time (minutes) | Number of Students | Lower Limit | Upper Limit | Class Mark | Class Boundary Lower | Class Boundary Upper | Class-Interval Size | Relative Frequency | Cumulative Frequency |
|--|--------------------------|-------------|-------------|------------|----------------------|----------------------|---------------------|--------------------|----------------------|
| 300–399 | 14 | 300 | 399 | 349.5 | 299.5 | 399.5 | 100 | 0.035 | 14 |
| 400–499 | 46 | 400 | 499 | 449.5 | 399.5 | 499.5 | 100 | 0.115 | 60 |
| 500–599 | 58 | 500 | 599 | 549.5 | 499.5 | 599.5 | 100 | 0.145 | 118 |
| 600–699 | 76 | 600 | 699 | 649.5 | 599.5 | 699.5 | 100 | 0.19 | 194 |
| 700–799 | 68 | 700 | 799 | 749.5 | 699.5 | 799.5 | 100 | 0.17 | 262 |
| 800–899 | 62 | 800 | 899 | 849.5 | 799.5 | 899.5 | 100 | 0.155 | 324 |
| 900–999 | 48 | 900 | 999 | 949.5 | 899.5 | 999.5 | 100 | 0.12 | 372 |
| 1000–1099 | 22 | 1000 | 1099 | 1049.5 | 999.5 | 1099.5 | 100 | 0.055 | 394 |
| 1100–1199 | 6 | 1100 | 1199 | 1149.5 | 1099.5 | 1199.5 | 100 | 0.015 | 400 |
| Questions | Answers | | | | | | | | |
| The upper limit of the fifth class | 799 | | | | | | | | |
| The lower limit of the eighth class | 1000 | | | | | | | | |
| The class mark of the seventh class | 949.5 | | | | | | | | |
| The class boundaries of the last class | 1099.5 and 1199.5 | | | | | | | | |
| The class-interval size | 100 | | | | | | | | |
| The frequency of the fourth class | 76 | | | | | | | | |
| The relative frequency of the sixth class | 15.50% | | | | | | | | |
| The percentage of students whose weekly viewing time does not exceed 600 minutes | 29.50% | | | | | | | | |
| The percentage of students with viewing times greater than or equal to 900 minutes | 19.00% | | | | | | | | |
| The percentage of students whose viewing times are at least 500 minutes but less than 1000 minutes | 78.00% | | | | | | | | |

2.21: Construct (a) a histogram and (b) a frequency polygon corresponding to the frequency distribution of Table 2.14.

| Class Mark | Number of Students |
|------------|--------------------|
| 349.5 | 14 |
| 449.5 | 46 |
| 549.5 | 58 |
| 649.5 | 76 |
| 749.5 | 68 |
| 849.5 | 62 |
| 949.5 | 48 |
| 1049.5 | 22 |
| 1149.5 | 6 |



| Class Mark | Number of Students |
|------------|--------------------|
| 300 | 0 |
| 349.5 | 14 |
| 449.5 | 46 |
| 549.5 | 58 |
| 649.5 | 76 |
| 749.5 | 68 |
| 849.5 | 62 |
| 949.5 | 48 |
| 1049.5 | 22 |
| 1149.5 | 6 |
| 1200 | 0 |



2.22: For the data in Table 2.14 of Problem 2.20, construct (a) a relative-frequency distribution, (b) a relative frequency histogram, and (c) a relative-frequency polygon.

| Class Mark | Relative Frequency |
|------------|--------------------|
| 300 | 0 |
| 349.5 | 0.035 |
| 449.5 | 0.115 |
| 549.5 | 0.145 |
| 649.5 | 0.19 |
| 749.5 | 0.17 |
| 849.5 | 0.155 |
| 949.5 | 0.12 |
| 1049.5 | 0.055 |
| 1149.5 | 0.015 |
| 1200 | 0 |

