

# Stem-and-Leaf Plots

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Score: \_\_\_\_\_ / 24

## Q Quick Review

A **stem-and-leaf plot** organizes data while keeping every original value. Each number is split into a **stem** (the leading digit or digits) and a **leaf** (the last digit). For example, 34 has stem 3 and leaf 4. Leaves for the same stem are written in a row, in order, so a value like 34 appears in the “3” row. Reading a value means joining its stem and leaf back together. Stem-and-leaf plots show the **shape** of the data and make it easy to find the **minimum, maximum, median, and mode**.

◇ **Example:** A stem-and-leaf plot has stem 1 with leaves 2, 5, 8, and stem 2 with leaves 1, 4, 7. List the data and find the median.

⇒ Rebuild each value by joining its stem and leaf. Stem 1 gives 12, 15, 18; stem 2 gives 21, 24, 27. So the data set is 12, 15, 18, 21, 24, 27 — already in order, which is the nice thing about these plots. There are 6 values, so the median is the average of the 3rd and 4th:  $(18 + 21) \div 2 = 19.5$ .

**Answer:** 12, 15, 18, 21, 24, 27; median = 19.5

## PRACTICE

Use the described stem-and-leaf plot to answer each question.

- Stem 3 has leaf 7. What value is this? \_\_\_\_\_
- Stem 5 has leaf 2. What value is this? \_\_\_\_\_
- Stem 1 has leaves 4, 9. List the values. \_\_\_\_\_
- Stem 2 has leaves 0, 3, 6. List the values. \_\_\_\_\_
- Stems 1–2; stem 1:5,8, stem 2:1,4. How many values? \_\_\_\_\_
- Plot: stem 1:2,7, stem 2:3,9. What is the minimum? \_\_\_\_\_
- Plot: stem 1:2,7, stem 2:3,9. What is the maximum? \_\_\_\_\_
- Plot: stem 1:2,7, stem 2:3,9. What is the range? \_\_\_\_\_
- Plot: stem 3:1,5, stem 4:2,8. List all values. \_\_\_\_\_
- Plot: stem 3:1,5, stem 4:2,8. What is the median? \_\_\_\_\_
- Plot: stem 2:5,5,8, stem 3:1. What is the mode? \_\_\_\_\_
- Plot: stem 2:5,5,8, stem 3:1. How many values? \_\_\_\_\_
- Plot: stem 4:0,4, stem 5:2,6,9. What is the minimum? \_\_\_\_\_
- Plot: stem 4:0,4, stem 5:2,6,9. What is the maximum? \_\_\_\_\_
- Plot: stem 4:0,4, stem 5:2,6,9. How many values? \_\_\_\_\_
- Plot: stem 1:0,5, stem 2:0,5. What is the median? \_\_\_\_\_
- Plot: stem 6:3, stem 7:1,1,8. What is the mode? \_\_\_\_\_
- Plot: stem 6:3, stem 7:1,1,8. What is the range? \_\_\_\_\_
- Stem 8 has leaf 0. What value is this? \_\_\_\_\_
- Plot: stem 1:2,4,6,8. What is the median? \_\_\_\_\_

## ◆ Word Problems

- A stem-and-leaf plot of test scores has stem 7 with leaves 0, 5, 8 and stem 8 with leaves 2, 4, 6, 9. How many students took the test, and what was the highest score? \_\_\_\_\_
- A stem-and-leaf plot of ages has stem 1 with leaves 1, 3, 3, 5 and stem 2 with leaves 0, 8. List the data and find the mode. \_\_\_\_\_
- A stem-and-leaf plot of plant heights (cm) has stem 2 with leaves 0, 4 and stem 3 with leaves 0, 6. Find the median height. \_\_\_\_\_



24. A coach made a stem-and-leaf plot of points scored: stem 1 has leaves 2, 8 and stem 2 has leaves 1, 5. What is the range of the points scored? \_\_\_\_\_



## Answer Keys

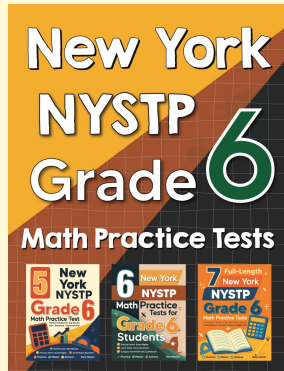
- |  |  |
|--|--|
| 1. <input type="text" value="37"/>             | 13. <input type="text" value="40"/>                                |
| 2. <input type="text" value="52"/>             | 14. <input type="text" value="59"/>                                |
| 3. <input type="text" value="14, 19"/>         | 15. <input type="text" value="5"/>                                 |
| 4. <input type="text" value="20, 23, 26"/>     | 16. <input type="text" value="15"/>                                |
| 5. <input type="text" value="4"/>              | 17. <input type="text" value="71"/>                                |
| 6. <input type="text" value="12"/>             | 18. <input type="text" value="15"/>                                |
| 7. <input type="text" value="29"/>             | 19. <input type="text" value="80"/>                                |
| 8. <input type="text" value="17"/>             | 20. <input type="text" value="15"/>                                |
| 9. <input type="text" value="31, 35, 42, 48"/> | 21. <input type="text" value="7 students; highest = 89"/>          |
| 10. <input type="text" value="38.5"/>          | 22. <input type="text" value="11, 13, 13, 15, 20, 28; mode = 13"/> |
| 11. <input type="text" value="25"/>            | 23. <input type="text" value="27 cm"/>                             |
| 12. <input type="text" value="4"/>             | 24. <input type="text" value="13 points"/>                         |

### Step-by-Step Explanations

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|--|--|
| <p>1. Join the stem and leaf: stem 3, leaf 7 makes 37.</p> <p>2. Stem 5 with leaf 2 is the value 52.</p> <p>3. Stem 1 with leaves 4 and 9 gives 14 and 19.</p> <p>4. Joining stem 2 with each leaf gives 20, 23, and 26.</p> <p>5. Count all the leaves: <math>2 + 2 = 4</math> values.</p> <p>6. The smallest value is the lowest stem with its smallest leaf: 12.</p> <p>7. The largest value is the highest stem with its largest leaf: 29.</p> <p>8. Maximum minus minimum: <math>29 - 12 = 17</math>.</p> <p>9. Join each stem with its leaves: 31, 35, 42, 48.</p> <p>10. The data is 31, 35, 42, 48; the median is the average of the two middle values, <math>(35 + 42) \div 2 = 38.5</math>.</p> <p>11. The value 25 appears twice (leaf 5 shows up twice on stem 2), so it is the mode.</p> <p>12. Count the leaves: <math>3 + 1 = 4</math> values.</p> <p>13. Lowest stem, smallest leaf: 40.</p> | <p>14. Highest stem, largest leaf: 59.</p> <p>15. Count the leaves: <math>2 + 3 = 5</math> values.</p> <p>16. The data is 10, 15, 20, 25; the median is <math>(15 + 20) \div 2 = 17.5</math>.</p> <p>17. The value 71 appears twice, so it is the mode.</p> <p>18. Minimum is 63, maximum is 78: <math>78 - 63 = 15</math>.</p> <p>19. Stem 8 with leaf 0 is the value 80.</p> <p>20. The data is 12, 14, 16, 18; the median is <math>(14 + 16) \div 2 = 15</math>.</p> <p>21. Count all the leaves: <math>3 + 4 = 7</math> students. The highest score is the largest stem with its largest leaf: stem 8, leaf 9, which is 89.</p> <p>22. Joining stems and leaves gives 11, 13, 13, 15, 20, 28. The value 13 appears twice — more than any other — so it is the mode.</p> <p>23. The data is 20, 24, 30, 36. With 4 values, the median is the average of the middle two: <math>(24 + 30) \div 2 = 27</math> cm.</p> <p>24. The data is 12, 18, 21, 25. The range is the maximum minus the minimum: <math>25 - 12 = 13</math> points.</p> |
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