Stem-and-Leaf Plots

Stem-and-Leaf Plots: Models and Computation

Name _____ **Date** _____ **Score** _____ / 8

QUICK REVIEW

Read the key before decoding a row. Each leaf is one observation, even when two leaves match. Keep leaves sorted within each stem. Range is the greatest value minus the least.

Worked example

With key $1 \mid 2 = 12$ cm, a plot has rows $1 \mid 2\ 2\ 9$ and $2 \mid 4$. How many lengths are there, and which length repeats?

1. Read stem 1 as $12, 12, 19$ cm and stem 2 as 24 cm.

2. Count all leaves: $3 + 1 = 4$. The two leaves 2 under stem 1 both mean 12 cm.

Answer: 4 lengths; 12 cm occurs twice.

Practice Problems

Show your thinking.

1. Read the practice times in the plot. List all times in order and give the number of observations.

Stem	Leaves
1	2 6
2	0 0 7
3	5

Key: $1 \mid 6 = 16$ min

2. The plot shows plant heights. Find the shortest and tallest heights and the range.

Stem	Leaves
3	8 9
4	1 4
5	0 3

Key: $3 \mid 8 = 38$ cm

3. Make a stem-and-leaf plot of $26, 31, 19, 26, 34, 22$ minutes. Use the table, sort each row, and write a key.

Stem	Leaves
1	
2	
3	

4. How many plants in the plot are at least 25 cm tall? Give the fraction of all plants.

Stem	Leaves
1	8
2	1 5 9
3	0 2

Key: $2 \mid 5 = 25$ cm

5. Which exact track times appear most often? Give their frequencies.

Stem	Leaves
2	3 5 5
3	1 5 5
4	5

Key: $2 \mid 5 = 25$ s

6. The plot shows tickets sold each day. Compare the number of days in the twenties with the number in the thirties.

Stem	Leaves
1	4
2	0 2 8
3	1 2
4	0

Key: $2 \mid 2 = 22$ tickets

7. These are recorded reading times. Which ten-minute group has the most entries? What is the greatest time?

Stem	Leaves
2	1
3	0 1 4 7
4	2 3

Key: $4 \mid 3 = 43$ min

8. Add board lengths of 48 cm and 52 cm to the plot. Write the two updated rows in sorted order.

Stem	Leaves
4	2 9
5	0 5

Key: $4 \mid 2 = 42$ cm

Answer Key

1. $12, 16, 20, 20, 27, 35$ min; 6 observations.
2. 38 cm and 53 cm; range 15 cm.
3. $1 \mid 9$; $2 \mid 2\ 6\ 6$; $3 \mid 1\ 4$. Key: $2 \mid 6 = 26$ min.
4. 4 plants; $\frac{2}{3}$ of all plants.
5. 25 and 35 s; 2 times each.
6. Twenties: 3 days; thirties: 2. The twenties have 1 more day.
7. The thirties, with 4 entries; greatest time 43 min.
8. $4 \mid 2\ 8\ 9$ and $5 \mid 0\ 2\ 5$.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. Stems $1, 2, 3$ give $12, 16$; $20, 20, 27$; and 35 min.
2. Keep both 20s. The rows have $2 + 3 + 1 = 6$ leaves.

Problem 2

1. The first entry is 38 cm; the last is 53 cm.
2. The range is $53 - 38 = 15$ cm.

Problem 3

1. Sort the times: $19, 22, 26, 26, 31, 34$. Put each tens digit in the stem column.
2. Write the ones digits as leaves. Both 26s go under stem 2.

Stem	Leaves
1	9
2	2 6 6
3	1 4

Key: $2 \mid 6 = 26$ min

Problem 4

1. Qualifying heights are $25, 29, 30, 32$ cm, so 4 qualify.
2. There are $1 + 3 + 2 = 6$ plants. The fraction is $\frac{4}{6} = \frac{2}{3}$.

Problem 5

1. In stem 2, two leaves 5 make two observations of 25 s.
2. In stem 3, two leaves 5 make two of 35 s. The 45 s entry occurs only once.

Problem 6

1. Stem 2 has 3 leaves: $20, 22, 28$ tickets.
2. Stem 3 has 2 leaves: $31, 32$ tickets. Difference: $3 - 2 = 1$ day.

Problem 7

1. Stems $2, 3, 4$ have $1, 4, 2$ leaves, so the thirties have the most.
2. The last leaf in stem 4 is 3, giving 43 min. The largest value is not in the busiest row.

Problem 8

1. 48 uses stem 4 and leaf 8; place it between 2 and 9.
2. 52 uses stem 5 and leaf 2; place it between 0 and 5.

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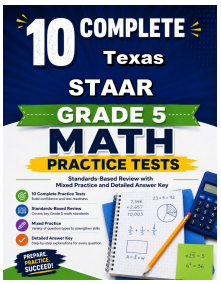

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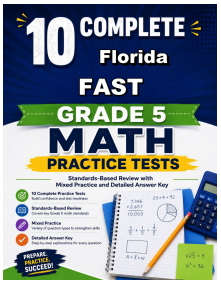

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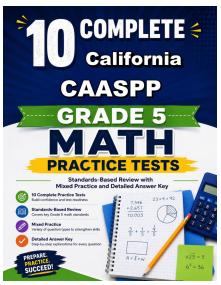

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