Quick-check: On a normal distribution curve, what percentage of data points will be within 1 standard deviation of the mean? Why does the graph show 34.1%?

- 68.2%, because 34.1% is only one side of the bell curve

Practice

Data

96, 96, 93, 90, 88, 86, 86, 84, 80, 70

Analysis

Calculation	Value
Mean	86.9
SD (P)	7.46257328272225
SD (S)	7.86624292644066
DF	9
2SD range	71.9748534345555 - 101.825146565445

Lab

Data

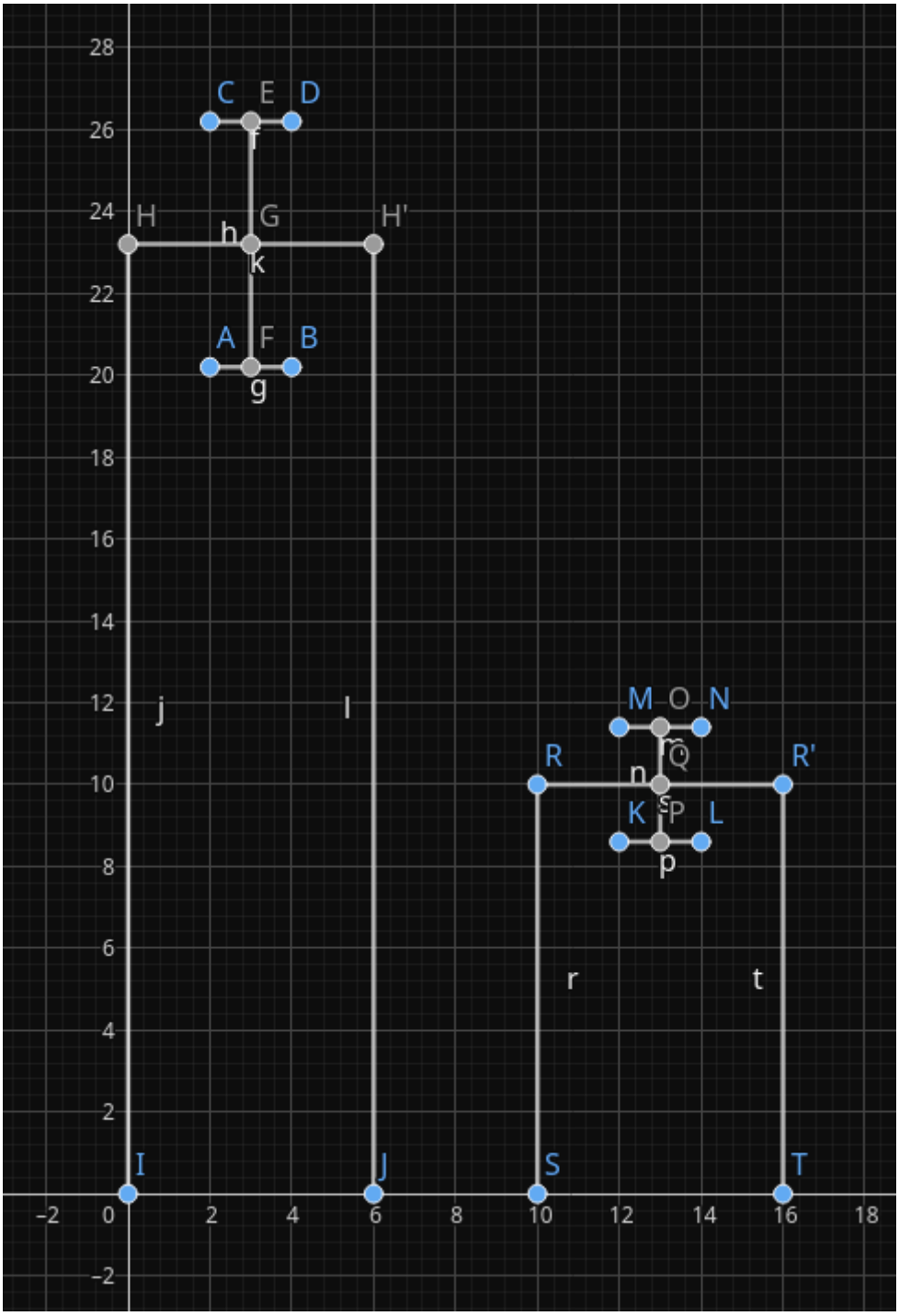
Trial	Drops of Distilled Water	Drops of Distilled Water + Soap
1	21	10
2	23	11
3	24	9
4	23	9
5	23	10
Avg	23	10

Analysis

Calculation	Drops of Distilled Water	Drops of Distilled Water + Soap
Mean	23.2	10
SD	1.48	0.71
+/- 1SD	21.7 - 24.7	9.3 - 10.7

Calculation	Drops of Distilled Water	Drops of Distilled Water + Soap
+/- 2SD	20.2 - 26.2	8.6 - 11.4
SE	0.66	0.32
+/- SEM	21.9 - 24.5	9.4 - 10.6

Presence of soap vs. number of drops until surface tension is broken



(← Distilled water, → Distilled water + soap)
(/\ Number of Drops (2SD, 95% confidence))

Conclusion

This shows that adding soap to distilled water does ruin the hydrogen bonding because the 95% confidence intervals do not overlap, meaning we can be 95% confident that soap does

decrease the effectivity of water to water bonding (hydrogen bonding)