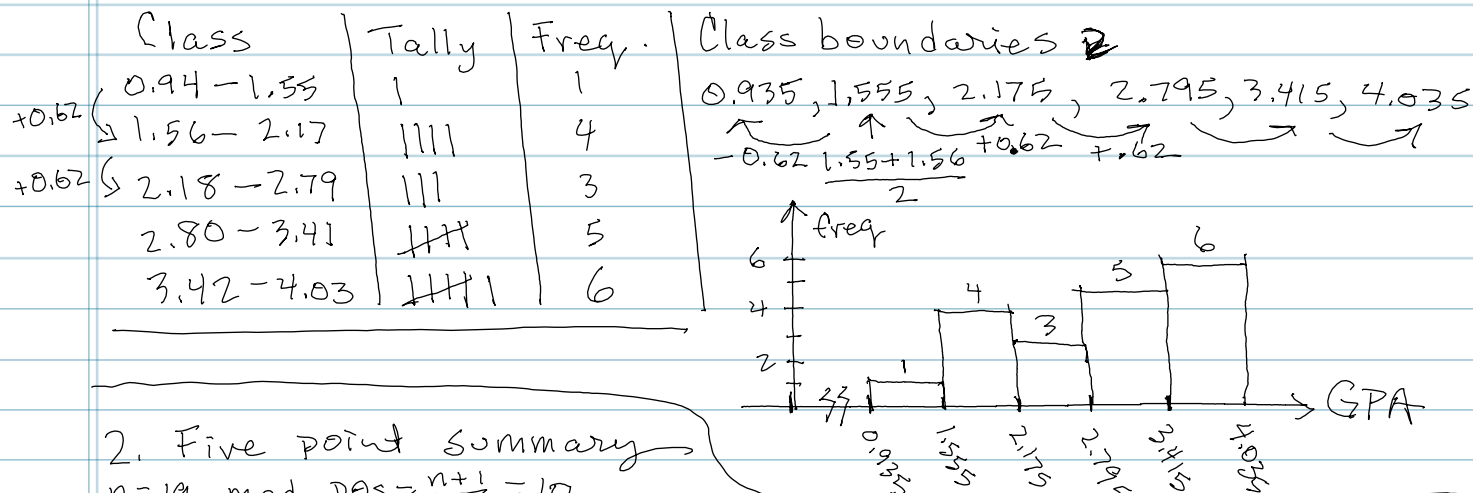


Math 110 Chapter 2 Review

→ Guth

{0.94, 1.69, 1.77, 1.91, 2.14, 2.26, 2.58, 2.64, 2.83, 2.83, 3.01, 3.13, 3.25, 3.42, 3.62, 3.74, 3.80, 3.81, 4.00}

1. Class Width = $\frac{\text{max} - \text{min}}{\# \text{ of classes}} = \frac{4 - 0.94}{5} = 0.612 \rightarrow 0.62 \text{ (larger)}$



2. Five point summary

$$n = 19 \text{ med. pos} = \frac{n+1}{2} = 10$$

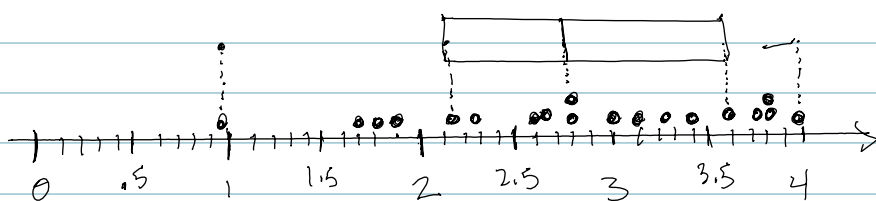
$$\text{Min} = 0.94, Q_1 = 2.14, \tilde{x} = 2.83, Q_3 = 3.62, \text{max} = 4.00$$

$$IQR = Q_3 - Q_1 = 3.62 - 2.14 = 1.48$$

$$\text{Lower fence} = Q_1 - 1.5 \cdot IQR = 2.14 - 1.5 \cdot 1.48 = -0.08$$

$$\text{Upper fence} = Q_3 + 1.5 \cdot IQR = 3.62 + 1.5 \cdot 1.48 = 5.84$$

No outliers



3. Center ≈ 2.8

Shape: skew left
 spread: range
 $= 4 - 0.94 = 3.06$

The mean is pulled in the direction of skew, so it should be less than the median.

$$4. \bar{x} = 2.809, 5. s = 0.853, s^2 = 0.728$$

6. Usual range: $\bar{x} - 2s$ to $\bar{x} + 2s$
 from: $\bar{x} - 2s = 2.809 - 2 \cdot 0.853 = 1.103$

$$\text{to } \bar{x} + 2s = 2.809 + 2 \cdot 0.853 = 4.515$$

$x = 0.94$ is outside of this range

$$x = 0.94$$

$$7. z = \frac{x - \bar{x}}{s} = \frac{0.94 - 2.809}{0.853} = -2.19$$

$\left\{ \begin{array}{l} x = 0.94 \text{ is} \\ \text{unusual} \end{array} \right.$

$$8. \frac{16}{19} \cdot 100 \approx 84\%, 9. \tilde{x} = 2.83, 10. \text{mode} = 2.83$$

$$11. \text{midrange} = \frac{\text{min} + \text{max}}{2} = \frac{0.94 + 4.00}{2} = 2.47$$

$$12. \text{Range} = \text{max} - \text{min} = 4.00 - 0.94 = 3.06$$

$$13. Q_1 = 2.14, Q_3 = 3.62, IQR = Q_3 - Q_1 = 1.48$$