

Name: KEY

Section 2.2 – Standard Deviation

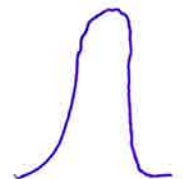
Find the Standard Deviation of the two populations below. Discuss the results and explain what the difference implies.

$$\sigma = \sqrt{\frac{(x_1 - \mu)^2 + (x_2 - \mu)^2 + \dots + (x_n - \mu)^2}{n}} \quad (\text{Basic Formula})$$

<p style="text-align: center;">2, 4, 5, 7, 8, 9, 13, 15</p> <p>μ first is the average</p> $\frac{2+4+5+7+8+9+13+15}{8} = \frac{63}{8}$ <p>$\mu = \boxed{7.9}$</p> $s = \sqrt{\frac{(2-7.9)^2 + (4-7.9)^2 + \dots + (15-7.9)^2}{8}}$ $s = \sqrt{\frac{(-5.9)^2 + (-3.9)^2 + (-2.9)^2 + (-0.9)^2 + \dots + (7.1)^2}{8}}$ $s = \sqrt{\frac{136.9}{8}} = \sqrt{17.1}$ <p style="text-align: center;">$s = \boxed{4.1}$</p>	<p style="text-align: center;">1, 5, 13, 35, 38, 48, 110, 230</p> $\mu = \frac{1+5+13+35+38+48+110+230}{8}$ $\mu = \frac{480}{8} = \boxed{60}$ $s = \sqrt{\frac{(1-60)^2 + (5-60)^2 + \dots + (230-60)^2}{8}}$ $s = \sqrt{\frac{41368}{8}}$ $s = \sqrt{5171}$ <p style="text-align: center;">$s = \boxed{71.9}$</p>
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Discuss/Explain

Small standard deviations mean that the spread of the data is close together, resulting in a steeper normal curve.



Large standard deviation means a more spread out dispersity in the data, means a less steep curve.

