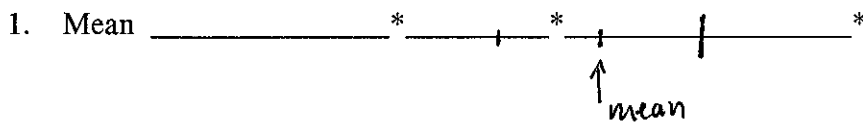


Hand this in Tuesday 9-22-09.



$$\text{index} = (3+1) \times 0.5 = 2^{\text{nd}}$$

3. Median for list {2, 6, 7}.

$$Q_2 = 6 \quad (3+1) \times 0.5 = 2^{\text{nd}} = \text{index}$$

4. **Probability** histogram for the heights of 500 men (inches). Suppose there are 79 men having height in the interval (70, 73]. Give the height of the probability histogram for that interval.

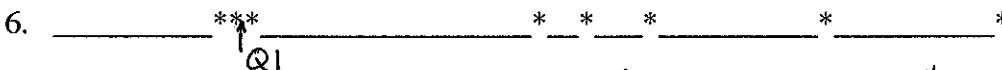
$$79/500$$

5. Standard deviation s for list {2, 6, 7}.

$$\text{mean} = 5$$

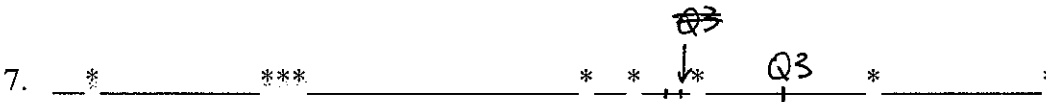
$$s = 2.65$$

$$s^2 = \frac{1}{n-1} \sum_{i=1}^n (y_i - \bar{y})^2 \quad \text{and} \quad s = \sqrt{s^2}$$



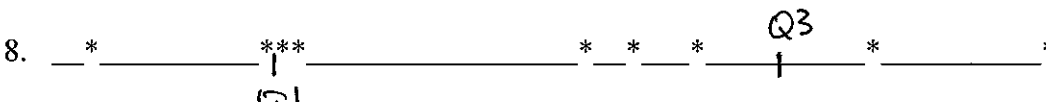
Give the first quartile.

$$(8+1) \times 0.25 = 2.25^{\text{th}}$$



Give the third quartile.

$$Q_3: 9 \times 0.75 = 6.75^{\text{th}} \quad (9+1) \times 0.75 = 7.5^{\text{th}}$$

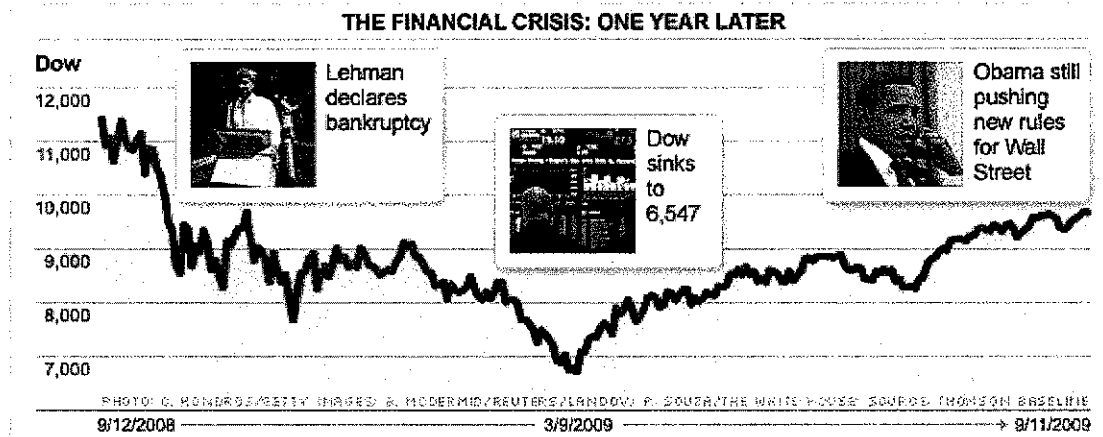


Give the inter-quartile range.

$$Q_1: 10 \times 0.25 = 2.5^{\text{th}}$$

IQR is distance between Q1 and Q3

9. A list x has mean 4.6. Give the mean of the list $2x$ (all scores doubled). $4.6 \times 2 = 9.2$
10. A list y has mean 3.8. Give the mean of the list $2y + 3$. $3.8 \times 2 + 3 = 10.6$
11. A list z has $s = 2.2$. Give s for the list $2z$. $2.2 \times 2 = 4.4$
12. A list w has $s = 5.7$. Give s for the list $w + 19$. 5.7 adding a constant does not change s
13. What principle from chapter 3 is routinely violated by graphs such as this?



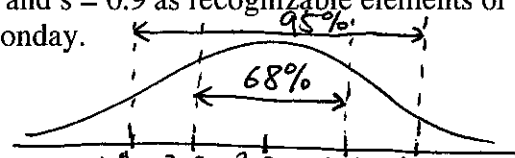
area principle

14. What is the underlying reason behind Simpson's Paradox in the Berkeley graduate admissions data mentioned in your book? Go on-line if you cannot get it from the book.

pg. 36

- averages are misleading and sometimes meaningless when taken over different categories, b/c the data may not be comparable

15. Consult chapter 6 to answer this question. Suppose that honeybee hives produce an average of 3.2 gallons with a standard deviation of 0.9 gallons. Assuming that these production figures follow a normal (bell) distribution, sketch the distribution. Be sure to label the mean 3.2 and $s = 0.9$ as recognizable elements of your sketch. I plan to go over this topic Monday.



larger version

16. From your sketch (15), determine the percentage of hives producing between the limits 3.2 ± 0.9 gallons.

68%

