

Homework 3

- page 120. 9-12. 13-16. 17.
9. The variance is 0.
10. variance.
11. 68%.
12. $1 - \frac{1}{K^2}$.
13. False. They are measures of spread.
14. True.
15. False. Will be between 5 and 25.
16. True. Application of Chebyshev's Inequality does not require the data to have a bell-shaped distribution.
17. $s^2 = 100, s = 10$.
- page 121. 29.
29. a. 95%. b. 140 and 212.
- page 122. 34. a. 18.3. b. 87.4. c. East: 66, West: 300. d. West. e. West.
- f. 30.5. Yes. g. 106. No.
- page 124. 41. a. Almost all. b. 68%. c. \$38.98 and \$50.22.
- page 125. 46. a. 16 percent
- b. 2.5 percent, c 47.5 percent.
- page 139. 5-8. 9-12. 13-14.
5. Quartiles. 6. second. 7. Inter quartile range. 8. outlier.
9. False. 10. True. 11. False. 12. True.
13. a. -1. b. 1.5. c. 11.
14. a. -2.25. b. 1.5. c. 35.
- Note both 13 and 14 use $z = \frac{x-\mu}{\sigma}$ to compute the z score.
- page 137. 24. 26.
24. a. $IQR = 115 - 100 = 15$.
- b. Upper boundary = $115 + 1.5 * 15 = 115 + 22.5 = 137.5$.
- lower boundary = $100 - 1.5 * 15 = 100 - 22.5 = 77.5$.
- c. Yes, as it is larger than 137.5.
- page 137. 26. a. $Q_1 = 37, Q_3 = 65.5$. b. 56.5. c. Lower: -5.75, upper: 108.25. d. No outliers. e. omitted. f. approximately symmetric or slightly skewed to the left.
- page 139. 37. a. $Q_1 = 20, Q_3 = 60, IQR = 40$.
- b. Upper outlier boundary = $60 + 1.5 * 40 = 120$, 150 is an outlier as it is bigger than 120.
- c. $Q_1 = 25, Q_3 = 105, IQR = 80$
- d. No.
- e. Both Q_3 and IQR increased.