

Midterm Review Answers

1. a. Heights: .67, 2.32, 1.93, 1.31, 1.11, .91, .41
c. 9.65%
2. 6.5, 8.5, 10.4, 13.8, 19.3
3. a. skew right
b. mean
4. a. Cause: infection as newborns
Effect: memory/learning
b. Controlled, researchers chose which rats received treatment
c. Cause: nominal; Effect: ordinal
5. a. 78.82%
b. 4.04%
c. 63.27%
d. 26.39%
e. 10th percentile: 177.5
60th percentile: 216.25
6. mean: 21; median: 22; standard deviation: 3.16
7. more, more
8. Nope, correlation only implies association
9. A confounding factor is any factor other than the treatment which systematically differs between the treatment and control groups. Regular drinkers may have a tendency to take more risks.
10. price goes up
11. a. yes
b. no
c. no
12. a.
$$\text{hours} - 25.93 = -.4 \left(\frac{22.93}{17.81} \right) (\text{age} - 46.76)$$
- b. 48.98 hours
- c. No, 2 is far from the average (2.6 in standard units) and there are no data for young ages such as that.
13. a. EV of average: \$66,160
SE of average: \$2,400
b. $P(\text{avg} > \$70,000) = 5.48\%$
14. a. average: 6; standard deviation: 2.9
b. EV of sum: 3000; SE of sum: 64.85
15. average: 0.02; standard deviation: 0.14
a. EV of count (sum): 40 people
SE of count (sum): 6.26 people
b. $P(35 < X < 50) = 73.34\%$
16. a. EV: -\$0.05; standard deviation: \$95
b. EV of sum: -\$49,900; SE of sum: \$95,000
c. EV of average: -\$0.05
SE of average: \$0.095
d. $P(\text{winnings} > \$0) = 29.12\%$
19. a. $\frac{30}{100} = .3$
b. $\frac{1}{30} = 0.033$
c. $\frac{50}{100} \frac{49}{100} \frac{48}{100} \frac{47}{100} = 0.0553$
d. $1 - \frac{50}{100} \frac{49}{100} \frac{48}{100} \frac{47}{100} = 0.9447$
20. a. $\frac{950}{1800} = 0.5278$
b. $\frac{1010}{1800} = 0.5611$
c. $\frac{340}{580} = 0.5862$
d. $\frac{110}{850} = 0.1294$
21. a. 47%
b. less
c. 116.68