

Stat 2000 International – Sample Midterm – Solutions

1. The answer is: **a)** Determining the difference between a plot with $r = 1$ and $r = .95$. [For $r = 1$, all points fall exactly on an increasing line, for $r = .95$, points are close to an increasing line but not all on this line.]
2. **b)** heart disease
3. **d)** All of the above
4. The analysis of the graph indicates that the histogram is not what you would expect to observe if the coins are fair. The histogram indicates an unusually large number of heads.
5. **d)** All of the above
6. **c)** .97
7. **c)** 47
8. **d)** The probability of the other is changed
9. 23.0%
10. **b)** This is a theoretical probability, since a Punnett square was used to determine the probabilities.
11. **b)** systematic sample

12. a) 74.5%

13. b) At least 75% of the states plus DC in the "32 to 37" group have teacher salaries above the median teacher salary of the "26 to 31" group

14. About 69 inches.

15. Assign the numbers 1 to 30 to the thirty students. In some way, randomly select 15 numbers between 1 and 30. The students with those numbers are assigned to the web-based approach. The other students are assigned to the textbook approach.

16. d) There is not enough information to answer the question

17. The problem is Warning #1: The sample is drawn from a list that isn't representative of the population of interest. The sample would be representative of all registered automobile owners, not all homeowners or all area residents.

18. Yes, towards the larger numbers of pets.

19. 57 and 67

20. a) 10 inches or less

21. Since a person's risk does not influence his/her spouse's risk, we have independent events and can use the special case of the AND rule and multiply the individual probabilities: $(1/25)(1/25) = 1/625$

22. d) $P(1) = 1/6$.

23. d) 500 students in the population

24. b) Try to get the person to respond anyway; if you substitute someone else the sample will be biased in favor of people with more time

25. This is linear. There are no outliers.

26. d) discrete random variable

27. 0.62

28. c) 4

29. b) \$145

30. a) 0.923

31. $P(\text{at most } 5) = .60$

32. 56 expected blacks; $SD = 7.178$

33. We expect $n * p = 50 * 0.8 = 40$ students to pass. The probability that at least 45 pass is about 0.048.

34. Mean height about 611.8, median height about 542.5. Since $\text{mean} > \text{median}$, we have some skewness towards the higher values.

35. d) All of the above are correct.