

Math 1040 – Review Answers

Chapters 1-3

1. (a) qualitative, nominal; (b) quantitative, interval; (c) qualitative, ordinal; (d) quantitative, ratio;
2. (a) stratified sample; (b) simple random, cluster, systematic, convenience.
3. (a) 16; (b) 10;
4. (a) Pie chart or bar graph.
5. (a) min=154, Q1=172, median=198, Q3=215, max=255; (b) 43; (c) 101.
6. (a) 196.3; (b) 198; (c) 28.2.
7. (a) 79.7; (b) 11.9.
8. (a) 0.6; (b) 68% ; (c) At least 75%.
9. (a) $5/14 = 0.36$; (b) $9/14 = 0.64$.
10. (a) 0.49; (b) 0.51.
11. (a) 0.58; (b) 0.42.
12. 495
13. 2730

Chapters 4-6

14. 0.9452
15. 124.75 and 145.25
16. 0.4772
17. (33.56, 59.28)
18. (0.1335, 0.2665)
19. (5811, 6589)
20. 25
21. (0.2196, 0.5263)
22. (a) 5; (b) 0.2503; (c) 0.2350.
23. (a) 0.2240; (b) 0.5768.
24. (a) $P(-1)=0.999$; $P(349)=0.001$; (b) -0.65; 11.06.
25. 385 (assuming the confidence level is 95%)

Chapters 7-9

26. 0.8758; positive linear correlation.
27. 0.7670; 77% of the variation in yield is explained by the variation in rainfall.
28. $t=4.06$; reject H_0 ; there is significant correlation between rainfall and yield.
29. $y=27.2+2.06x$; $y=58.1$.
30. 5.97; given a fixed amount of rainfall, the standard deviation of yield is 5.97.
31. (40.8, 75.4)
32. $z=1.79$; reject H_0 ; coin is not fair.
33. $t=3.52$; reject H_0 ; mean number of interviews is more than 53.
34. $z=-1.71$; fail to reject H_0 ; not enough evidence to conclude that male students earn more.
35. $t=3.16$; reject H_0 ; the incentive program works.
36. $z=-1.19$; fail to reject H_0 ; not enough evidence to conclude that there is a difference.

Chapter 10

37. $\chi^2 = 16.18$; reject H_0 ; enough evidence to conclude that the teacher is wrong.
38. $F=1.98$; fail to reject H_0 ; not enough evidence to conclude that women have a lower variance of blood pressure.
39. $F=4.67$; reject H_0 ; the type of fertilizer does make a difference.