Answers 1-100 SET 5

1. 1/2
2. 1/2
3. 5/10 = 1/2
4. 1/4
5. 1/4
6. 13/52 = 1/4
7. 0.7
8. 15/20 = 3/4
9. 3/4
10. 9/13
11. 6/36 = 1/6
12. (6/10)×(5/9) = 1/3
13. 3/8
14. 6/36 = 1/6
15. (1/6)×(1/4) = 1/24
16. (4/52)×(3/51) = 1/221
17. 0.3×0.5 = 0.15
18. 5/36
19. 8 green marbles originally (solve via ratio/proportion)
20. 0.3
21. 3/7
22. 6/16 = 3/8
23. 3/6 = 1/2
24. (13+4)/52 = 17/52

25. (12/52)×(11/51) = 1/17
26. (5/12)×(7/11)+(7/12)×(5/11)=35/66
27. 3/8
28. 0.12
29. (4/10)×(4/10)=4/25
30. 25/36
31. (12/30)×(11/29)=22/145
32. (4/10)×(4/10)=16/100=4/25
33. (5/6)^3=125/216
34. Expected heads=5×0.5=2.5
35. C(8,4)×(0.5)^8=70×(1/256)≈0.273
36. 1-(0.3)^3=0.973
37. (6+2)/36=8/36=2/9
38. P(at least 2 passes)=0.896
39. 0.65
40. (0.1)^2=0.01
41. 5 expected
42. C(8,4)×(0.5)^8≈0.273
43. 20×(1/6)=3.33 expected sixes
44. C(10,3)×(0.4)$^{3\times(0.6)}$7≈0.25
45. Sum P(2 to 6)≈0.62
46. C(5,4)×(0.75)^4×(0.25)=0.39
47. (0.4)^4=0.0256
48. 0.02×500=10 defective expected
49. Approx 15.87% above 85 (Z=1)
50. Approx 15.87% taller than 180 (Z=1)
51. 1-(0.02)^3≈0.99999
52. Approx 0.02 (binomial CDF)

53. Use binomial sum $P(X \geq 4)$ for $n=8$, $p=0.55$
54. $1-(0.99)^{30} \approx 0.26$
55. $4/48=1/12$
56. Approx 15.87% below 60 ($Z=-1.25$)
57. Use normal approx for £350 threshold
58. $C(20,3) \times (0.1)^{3 \times (0.9)} 17 \approx 0.057$
59. Use binomial table or formula $P(X \geq 40)$ with $n=60$, $p=0.6$
60. 0.15
61. $(3/5)(2/7)=6/35$
62. Estimate complement population via given
63. $(5/8)(4/7) = 20/56 = 5/14$
64. Variation due to sample size
65. 0.5 total probability diagraph
66. Adding intersecting event probabilities
67. Calculations based on relative dice scores
68. Solving ratio problems for counts
69. Six matching dice pairs
70. Experimental vs theoretical difference explained
71. Solve algebra for unknown counters
72. 1/36
73. $3/6=1/2$
74. Using frequency vs expectation to assess bias
75. Calculating probabilities of red-blue combinations
76. Probabilities of all/none submission scenarios
77. Inclusion-exclusion of sets probabilities
78. Compound probability using conditional probabilities
79. Probability intersection for independent events
80. Multiplying probabilities in tree diagram branches

81. 12/30=2/5
82. 15/50=3/10
83. $ \frac{n(12-n)}{66} $ by tree diagram approach.
84. Multiplying sequential event probabilities
85. Multiplying independent event probabilities
86. Adding probabilities minus overlap
87. Using conditional probability formula
88. Multiplying sequential draws probabilities
89. Adding probabilities for mutually exclusive events
90. Comparing relative frequency data
91. Adding probabilities sum 7 and 11: 2/9
92. Probability sum 7 with two spinners: 4/25
93. Red or face card probability: 8/13
94. Exactly 3 heads in 4 tosses: 4/16=0.25
95. Probability both marbles same color: sum of individual color probabilities
96. Multiplying independent probabilities for weather conditions
97. Multiplying stage probabilities in game
98. Calculating effect of replacement vs no replacement
99. Adding branch probabilities on tree
100. Multiplying probabilities for consecutive biased events