The Normal Distribution Answers

1 Looking at Your Data

1. (a) About $2\frac{1}{2}\%$ (b) About 16% (c) About 7 - 8

2 The P.D.F. of the Normal

1. (a) 0.20611 (b) 0.79389 (c) 0.79389
   (d) 0.20611 (e) 0.58778 (f) 0.68268
   (g) 0.77453 (h) 0.49379 (i) 0.95000

3 Transformation of Normal P.D.F.s

1. (a) 0.02275 (b) 0.68268 (c) 0.99865
2. (a) 0.15866 (b) 0.68268 (c) 0.62465
3. (a) 0.95254 (b) 0.25850 (c) 0.74927
4. 0.02275
5. 0.1038
6. 0.57% ; 1
7. 0.067
8. 11.5%

4 More Complicated Examples

1. 5%
2. 24
3. (a) 21/22 (b) about 10
4. 1.56, 2.7%
5. (a) 95.0, 3 (b) 0.99%
6. 398, 63 (or 61 or 62 depending on accuracy used)
7. (a) 0.2119 (b) 22.65 g
8. (a) 0.115 (b) 33.3 g
9. (a) 0.6853 (b) 40.49 m (c) 40.06, 4.88

   (d) Gwen, as she has a much higher standard deviation in her throws (4.88 compared to 2.0) even though she has a slightly smaller mean (40.05 compared to 41.0).
   In fact,

$$p(\text{Gwen} > 48) = 0.516$$

$$p(\text{Yuk Ping} > 48) = 0.0002$$