Part 2.7 Answers

1a. 0.0620 (3sf)
1b. 0.558 (3sf)
1c. 66.7% (3sf)

2a. 0.0668 (3sf)
2b. 0.191 (3sf)
2c. 70.3 cm (3sf)

3a. 0.0401 (3sf)
3b. 0.150 (3sf)
3c. 254mg (3sf)

4a. 0.0668 (3sf)
4b. 0.0579 (3sf)
4c. 0.780 (3sf)

5a. 0.0478 (3sf)
5b. 0.988 (3sf)
5c. σ = 1.81 days, μ = 61.1 days (3sf)

6a. 0.933 (3sf)
6b. 0.988 (3sf)
6c. 2.11 (3sf)

7a. 0.159 (3sf)
7b. 0.134 (3sf)
7c. σ for Beta = 1.78cm (3sf). This means there will be more variation in the gaps for Beta desks than for alpha desks.

8. Normal distributions should be continuous, bell-shaped, unimodal and symmetrical. Looking at this data we can see the data is reasonably symmetrical, with just a couple of smaller points off to the left, which may be due to those boys being younger, and it is reasonably bell-shaped, with the highest bar being between 49 and 50, where the mean is 50, and very clearly unimodal. If it was normally distributed then the probability of a popliteal length being over 52 cm would be 0.245 (3sf) whereas from the histogram we can see it is 0.09+0.1+0.06+0.04+0.02 = 0.31, which is a little bit higher, than the 0.245, but you would expect some variation. Therefore a normal distribution is appropriate for the popliteal length for boys.