

Question 2

(6 marks)

For a set of data values that are normally distributed, approximately 68% of the values will lie within one standard deviation of the mean, approximately 95% of the values will lie within two standard deviations of the mean and approximately 99.7% of the values will lie within three standard deviations of the mean.

If the heights of a large group of women are normally distributed with a mean $\mu = 163$ cm and standard deviation $\sigma = 7$ cm, use the above information to answer the following questions:

- (a) A statistician says that almost all of the women have heights in the range 142 cm to 184 cm. Comment on her statement. (2 marks)
- (b) Approximately what percentage of women in the group has a height greater than 170 cm? (2 marks)
- (c) Approximately 2.5% of the women are shorter than what height? (2 marks)