

1. A cheese factory sells cheese in 750g blocks. It is found that the mean of 240 blocks of cheese taken at random is 752g with a standard deviation of 2g.

a) Find the number of blocks of cheese that weigh less than 754g. 201 blocks

b) If a block of cheese is chosen at random, between what two weights is it very likely to be?

$\sim 95\%$ (2sd) $P(748 < X < 756)$

c) What is the probability of finding a block of cheese that weighs more than 756g?

0.02275

2. The length of time a person speaks on the phone is normally distributed with a mean of 3min 25secs(205secs) and a standard deviation of 1min 10secs(70secs).

a) What is the probability that a phone call lasts less than 2min 30secs? 0.216

b) What is the probability that a phone call lasts between 2min 30secs and 4 min? 0.4754

3. The number of people on the trains travelling out from Wellington to Paraparaumu, who are caught without a valid ticket, are counted over a period of a few days. The Mean and standard deviation were 23 and 4.5 respectively.

a) Calculate the probability that, on a day selected at random, more than 20 people are caught without a valid ticket. 0.7475

b) Find the expected lower and upper limits for 85% of the number of people caught travelling without tickets. $16 < X < 29$

4. Use to table to answer the following questions.

a) $P(0 < Z < 1.80)$ 0.4641

b) $P(-2.4 < Z < 1.83)$ 0.9582

c) $P(Z < -1.32)$ 0.0934

5. The results of a Maths test are normally distributed with a mean of 52% and a standard deviation of 15%. The top 5% of students gain a Distinction certificate and the next 10% below gain a Merit certificate.

Calculate a) the minimum mark required to gain a Distinction certificate. 76.7%

b) the mark interval required to gain a Merit certificate.

$67.5\% \rightarrow 76.6\%$