EE3211 Modelling Techniques

Week 2 Assignment

Q1.

If X represents total carbohydrate intake in 12–14-year-old males, then we compute

$$\Pr(Y>140)=1-\Phi\left(\frac{140-124}{20}\right)$$
$$=1-\Phi(0.80)=1-0.7881=0.212$$

Q2.

We compute

$$\Pr(Y<90)=\Phi\left(\frac{90-124}{20}\right)$$
$$=\Phi(-1.70)=1-\Phi(1.70)=0.0446$$

Q3.

$$Pr(X\le 200)=\Phi\left(\frac{200-219}{50}\right)$$
$$=\Phi(-0.38)=1-\Phi(0.38)$$
$$=1-.6480=.352$$

Q4.

$$\Pr(X\ge 250)=1-\Phi\left(\frac{250-219}{50}\right)$$
$$=1-\Phi(0.62)=1-.7324=.268.$$

Q5.

$$Pr(200<X<250)=\Phi\left(\frac{250-219}{50}\right)-\Phi\left(\frac{200-219}{50}\right)$$
$$=\Phi(0.62)-\Phi(-0.38)$$
$$=\Phi(0.62)-\left[1-\Phi(0.38)\right]$$
$$=\Phi(0.62)+\Phi(0.38)-1$$
$$=0.7324+.6480-1=.380$$

Q6.

Y	-1	-1/2	0	1/2	1	3/2
Pr	1/12	3/12	4/12	1/12	2/12	1/12

Q7.

Z	0	1	4	9
Pr	4/12	4/12	3/12	1/12

Q8.

expected value: 0.25

variance: 2.2045