

Date: 25/3

Task 1

1) ${}^{250}C_2 = 31125$

2) ${}^nC_r = \frac{n!}{r!(n-r)!} = {}^5C_2 = 10$

3) $2^3 = 8$

4) ${}^{30}C_3 = 4060$

5) ${}^6C_3 = 20$

6) probability of number 7 in 3 rolls is $\left(\frac{5}{6}\right)^3 = 0.578$ * ①

$1 - * = 0.421$ * ②

7) 3 books from 6 = ${}^6C_3 = 20$

3 books from 4 = ${}^4C_3 = 4$

${}^2C_1 = 2$

Result = $20 - (4+2) = 16+2 = 18$

8)

a) ${}^{20}C_9 = 167960$

b) ${}^2C_2 \times {}^2C_2 \times {}^2C_2 \times {}^2C_2 \times {}^{20}C_4 = 4845$