Exercise 1 (Ross 1.7). (a) In how many ways can 3 boys and 3 girls sit in a row?

(b) In how many ways can 3 boys and 3 girls sit in a row if the boys and girls are each to sit together?

(c) In how many ways if only the boys must sit together?

(d) In how many ways if no two people of the same sex are allowed to sit together?

Exercise 2 (Ross 1.9). A child has 12 blocks, of which 6 are black, 4 are red, 1 is white, and 1 is blue. If the child puts the blocks in a line, how many arrangements are possible.

Exercise 3 (Ross 1.13). Consider a group of 20 people. If everyone shakes hands with everyone else, how many handshakes take place?

Exercise 4 (Ross 1.15). A dance class consists of 22 students, 10 women and 12 men. If 5 men and 5 women are to be chosen and then paired off, how many results are possible?

Exercise 5 (Ross 1.19). From a group of 8 women and 6 men a committee consisting of 3 men and 3 women is to be formed. How many different committees are possible if

(a) 2 of the men refuse to serve together.

(b) 2 of the women refuse to serve together.

(c) 1 man and 1 woman refuse to serve together.

Exercise 6 (Ross 1.25). The game of bridge is played by 4 players, each of whom is dealt 13 cards. How many bridge hands are possible?