

Assignment 1Question 1

(a) permutation

(b) permutation

(c) combination

(d) combination

Question 2

(a) ${}^{10}P_4 = 5040$

(b) ${}^{17}C_8 = 680$

(c) ${}^{25}C_9 = 1081575$

(d) ${}^{45}P_3 = 85140$

Question 3

(a) 4 digit number no repetition are allowed

$2 \times 3 \times 2 \times 1$

$4 \times 3 \times 2$

4×3

4

number of

12

24

12

4

$12 \times 2 = 24$

(b)

$$\begin{aligned} \text{i. trousers} &= 3 \times 2 \times 3 \times 2 \times 2 \times 1 \\ &= 72 \end{aligned}$$

$$\begin{aligned} \text{Skirts} &= 3 \times 2 \times 3 \times 2 \times 2 \times 1 \\ &= 72 \end{aligned}$$

$$\begin{aligned} \text{Shorts} &= 3 \times 3 \times 2 \times 4 \times 2 \times 1 \\ &= 144 \end{aligned}$$

$$\begin{aligned} &= 72 + 72 + 144 \\ &= 288 \text{ possible combination.} \end{aligned}$$

ii. Short and shirts

$$\begin{aligned} &= 3 \times 3 \times 4 \times 2 \times 1 \\ &= 72 \end{aligned}$$

trouser and shirt

$$\begin{aligned} &= 3 \times 2 \times 3 \times 2 \times 1 \\ &= 36 \end{aligned}$$

trouser and tshirt

$$\begin{aligned} &= 2 \times 3 \times 2 \times 2 \times 1 \\ &= 24 \end{aligned}$$

short and tshirt

$$\begin{aligned} &= 3 \times 2 \times 4 \times 2 \times 1 \\ &= 48 \end{aligned}$$

Skirt and tshirt

$$\begin{aligned} &= 2 \times 3 \times 2 \times 2 \times 1 \\ &= 24 \end{aligned}$$

Skirt and shirt

$$\begin{aligned} &= 3 \times 2 \times 3 \times 2 \times 1 \\ &= 36 \end{aligned}$$

$$\begin{aligned} &= 72 + 36 + 24 + 48 + 24 + 36 \\ &= 240 \text{ possible combination.} \end{aligned}$$