X.4. A woman has six dresses, five pairs of trousers and three shirts. Assuming that the woman can either wear a dress or she can wear trousers with a shirt, how many different outfits does she have? (Explain how you got your answer using the "sum rule" and the "product rule".)

Number of dresses = 6

Pairs of trousers = 5

Number of shirts = 3

Solution:

For dresses, we only have 6 possible outfits.

To find the number of possible outfits with the trousers and shirts, we need to multiply the number of trousers and the number of shirts:

$$5 * 3 = 15$$

Now, to find the number of possible outfits, we need to sum up the two possibilities (the outfits with the dresses, and the outfits with the trousers with shirts):

$$15 + 6 = 21$$