

Subject n°31: Probabilities

Please do not write on this document, and do not forget to hand it back at the end of the test.

In a group of 50 men, we notice that some men wear a tie and that some men have got blue eyes.

We count 20 men wearing a tie, 15 men with blue eyes, among whom 8 wear a tie.

We choose a person at random in this group.

We note : T the event : “He wears a tie”,
 and B the event : “He has got blue eyes”.

1°) Draw a probability tree of the situation.

2°) Calculate $P(T)$.

3°) Calculate $P(B)$.

4°) Explain what $P(B \cap T)$ is and calculate it.

5°) Explain what $P_B(T)$ is and calculate it.