

**Sujet n°20**

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

**Probability**

A company is conducting a market survey to understand the buying behavior of its customers. The survey reveals the following:

- 60% of the customers are interested in purchasing a new product .
- 40% of the customers are willing to pay a premium price for high-quality products
- 25% of the customers are both interested in purchasing the new product and willing to pay a premium price for high-quality products.
- A customer is chosen randomly.

**Questions:**

1. What is the probability that a customer is willing to pay a premium price given that they are interested in purchasing the new product?
2. What is the probability that a customer is interested in purchasing the new product given that they are willing to pay a premium price?
3. Are the events “The customer is interested in the new product” and “The customer is willing to pay a premium price” independent?