

Sujet n°09

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

Probabilities

1) Warm up questions :

What are probabilities?

What is the difference between probabilities and conditional probabilities?

2) Main task:

Morelli is a famous Irish ice cream brand. They have won many awards over the years, and were ranked n°6 in the article from The Guardian, “The 12 best places to buy ice cream in the UK” in June 2023. Their many flavours of frozen desserts are sorted into four categories:

- **Classic**, four of which have won an award (A):



Double cream vanilla (A), Honeycomb, Belgian chocolate chip, Strawberry (A), Coffe (A), Rum and raisin, Mint and belgian chocolate chip, Raspberry ripple, Banana, Chocolate brownies, Bubblegum, Turkish delight, Malt tease, Coconut, Chocolate, Lemon and lime ripple, Sea salty caramel (A), Parm violet, Oreos and cream.

- **Sorbet**, lemon or mango (no picture here).
- **Special**, one of which has won an award (A) :



Caramelised hazelnut (A), Pistachio, Ferrero rocher, Mr Nico

- **Luxury:**



Dime bar crunch, Chocolate honeycomb, Kinderelli, Minionelli two tone twist, Speculoos cookie crunch, Bueno, Vanilla & chocolate two tone twist, Mister Morelli, Creamy egg.

Using this ice-cream menu, create an exercise using conditional probabilities.

Explain your choices, and provide the answers to your questions.