

Sujet n°

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



FIGURE 1 – Harry and Meghan (AP Photo/Matt Dunham, Pool, File)

"We intend to step back as senior members of the Royal Family and work to become financially independent".

Meghan and Harry, Duke of Sussex, Feb 19, 2021

"Following conversations with the Duke, the Queen has written confirming that in stepping away from the work of the Royal Family it is not possible to continue with the responsibilities and duties that come with a life of public service".

Buckingham Palace statement, Feb 20, 2021

In September 22, 2024, the newspaper Sunday Times made a survey on 1200 people about Meghan and Harry, Duke of Sussex. The results were as follows :

- 28% had a good opinion of Harry and Meghan.
- Among these 28%, 80% were less than thirty years old.
- 95% of the people that had a bad opinion of Harry and Meghan were more than thirty years old.

One person is chosen at random.

Consider the following events :

F : "A person has a good opinion of Harry and Meghan".

Y : "A person is less than 30 years old".

1. Represent this information on a tree-diagram.
2. Consider a person who isn't in favour of Harry and Meghan. What is the probability that he or she is more than thirty?
3. What is the probability that the person is less than 30?
4. Consider that the person is older than 30, what is the probability that this person has a good opinion of Harry and Meghan?
5. Are the two events F and Y independent?