

## Wayne Williams and Probability Case Study

Read the Wayne Williams case study, “The Use of Fiber Evidence” and answer the following questions.

1. What made the fibers found on the victims unusual?  
The yellow-green nylon fibers were unusual; coarse and tri-lobed in cross section the fibers appeared to be those used in rugs or carpets. However, police were unable to determine the manufacturer of the fibers.
2. What did the perpetrator do that indicated he was following news coverage of the killings?  
In February 1981, following newspaper accounts of the fiber analysis, the killer began dumping bodies in Chattahoochee River. The victims were now also nude, or nearly so. It appeared that the killer was monitoring media coverage of the killings, and modifying his methods to reduce fiber evidence on the victim’s bodies.
3. Why did Wayne Williams become the primary suspect?  
Early on the morning of May 22, 1981, a police patrol heard a splash. Police stopped a station wagon on the James Jackson Parkway Bridge. The driver was 23 year old Wayne Bertram Williams, a music promoter. He was questioned by police, but allowed to leave. Two days later, the body of Nathaniel Cater was recovered from the Chattahoochee River, a mile downstream of the James Jackson Parkway Bridge.
4. What was the probability of finding a house in Atlanta with the same shade of carpet as the fiber found on the victims?  
1 in 7,792
5. What was the probability of finding fibers that matched Wayne Williams’s car in Atlanta?  
1 in 3,828
6. What is the combined probability that a victim would have come in contact with similar carpet fibers and car fibers from a sources other than Wayne Williams?  
1 in 29,827,776
7. Now it is your turn. The following cases include some common types of evidence and the frequency each type of evidence occurs in the general population. Given what you know about probability, calculate the combined probability of the following independent types of evidence occurring in the same case:  
Case A: Brown hair (51%), Type O blood (43%), and an Arch fingerprint (5%) 99%  
Case B: Blonde hair (32%), Type AB blood (3%), and a Whorl fingerprint (33%) 68%  
Case C: Red hair (11%), Type O blood (43%), and a Loop fingerprint (65%) 119%