

Practice Exam 1

Math 2030 - Elementary Probability

Due 17 June 2021

Question 1 In the town of Bandrika roughly 75% of the population are tourists and the other 25% are residents (aka Bandrikans). You visit Bandrika and you want to visit the tomb of the sacred, but you don't know the way. You decide to ask someone in Bandrika and they give you directions. You know that a tourist will give you the correct directions 100% of the time, but a Bandrikan (who really don't like tourists) will give you correct directions 25% of the time. You follow the directions and you correctly end up at the tomb of the sacred! What are the chances the person you asked was a Bandrikan?

Question 2 Every morning you walk into a coffee shop and get some coffee. Some days you decide to treat yourself to a pastry! You decide to treat yourself with probability $\frac{1}{5}$. After going to the coffee shop for 2 weeks (14 days), what is the exact probability that you get a pastry exactly 3 times?

Question 3 You love going to our local pizzeria every single day. You always order a pineapple pizza but they forget the pineapple with probability $\frac{1}{70}$. After one year (365 days) what is the probability that they forget pineapple 8 or more times? (Give a normal approximation)

Question 4 Suppose that every month as 30 days. What's the probability that after 7 people, 2 of them have the same birthday?