Instructions: This quiz is closed book, closed note, and an individual effort. Electronic devices other than approved calculators are not allowed on your person (e.g., no cell phones or calculators with CAS). Answer each question. **Show all work to receive full credit.** Unless the question specifies, you may provide either an exact answer or round to two decimal places. **Do not plug your answers into a calculator!** Leave your answers as factorials (e.g., 5!), binomial coefficients (e.g., $\binom{10}{3}$), exponentials (e.g., 10^3), etc.

1. (6 pts) In a survey of Latin music downloads, 200 were regional, 130 were pop-rock, 45 were tropical, and 25 were urban. Calculate the following relative frequencies.

(a) That a music download was pop/rock.

Answer: 130/400.

(b) That a music download was neither tropical nor regional.

Answer: 155/400.

(c) That a music download was not regional.

Answer: 200/400.

2. Consider the following table, where the event is labeled with the row or column title (e.g., S is the event for Successful Authors).

	New Authors (N)	Published Authors (E)	Total
Successful (S)	5	25	30
Unsuccessful (U)	15	55	70
Total	20	80	100

Answer the following questions about the table.

(a) **(2 pts)** Describe the event $S \cap N$ in words. Use the table to compute $n(S \cap N)$.

Answer: The event $S \cap N$ is the set of new authors that are also successful. We note that $n(S \cap N) = 5$.

(b) **(2 pts)** Which of the following pairs of events are mutually exclusive: N and E; N and S; S and E? Justify your answer.

Answer: Note that an author can be both new and successful, as well as established and successful. So N and S; and S and E are not mutually exclusive. However, an author cannot be both new and established, so N and E are mutually exclusive.