BECA / Dr. Huson / IB Mathematics Name:
9 December 2019

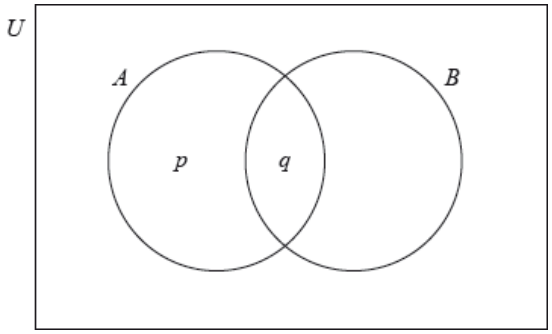
Classwork: Probability exam problems

1a. Events A and B are independent with $\mathrm{P}(A \cap B) = 0.2$ and $\mathrm{P}(A' \cap B) = 0.6$.

Find $\mathrm{P}(B)$. *[2 marks]*

1b. Find $\mathrm{P}(A \cup B)$. *[4 marks]*

2a. The following Venn diagram shows the events A and B, where $\mathrm{P}(A) = 0.4,\ \mathrm{P}(A \cup B) = 0.8$ and $\mathrm{P}(A \cap B) = 0.1$. The values p and q are probabilities.



(i) Write down the value of q.

(ii) Find the value of p. *[3 marks]*

2b. Find $\mathrm{P}(B)$. *[3 marks]*

3. Nene and Deka both play netball. The probability that Nene will score a goal on her first attempt is 0.75. The probability that Deka will score a goal on her first attempt is 0.82.

Calculate the probability that

(a) Nene and Deka will both score a goal on their first attempts;

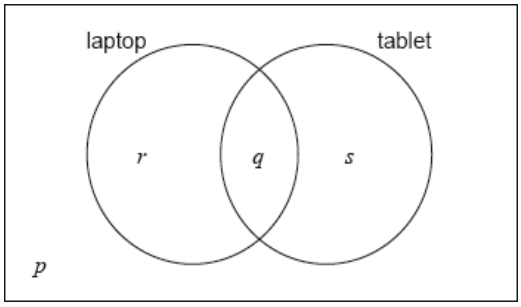
(b) neither Nene nor Deka will score a goal on their first attempts.

(Total 4 marks)

4a. In a class of 21 students, 12 own a laptop, 10 own a tablet, and 3 own neither.

The following Venn diagram shows the events "own a laptop" and "own a tablet".

The values p, q, r and s represent numbers of students.



(i) Write down the value of p.

(ii) Find the value of q.

(iii) Write down the value of r and of s. *[5 marks]*

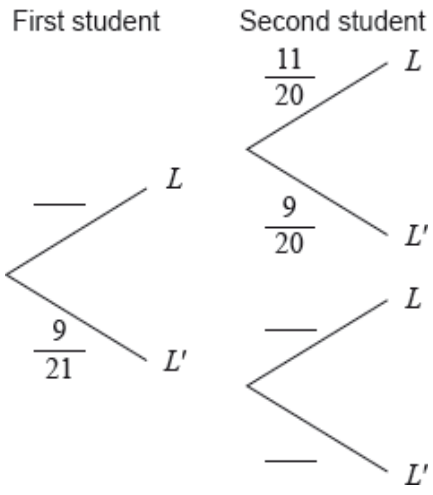
4b. A student is selected at random from the class.

(i) Write down the probability that this student owns a laptop.

(ii) Find the probability that this student owns a laptop or a tablet but not both. *[4 marks]*

4c. Two students are randomly selected from the class. Let L be the event a "student owns a laptop".

(i) **Copy** and complete the following tree diagram. (Do **not** write on this page.)



(ii) Write down the probability that the second student owns a laptop given that the first owns a laptop. *[4 marks]*