

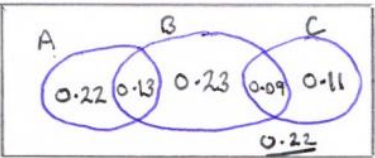
Daily Question

Day 1 Statistics – Mark Scheme

Question 1

(a)	$(R \text{ and } S \text{ are mutually) exclusive.}$	B1 (1)
(b)	$\frac{2}{3} = \frac{1}{4} + P(B) - P(A \cap B)$ <p style="text-align: right;">use of Addition Rule</p> $\frac{2}{3} = \frac{1}{4} + P(B) - \frac{1}{4} \times P(B)$ <p style="text-align: right;">use of independence</p> $\frac{5}{12} = \frac{3}{4} P(B)$ $P(B) = \frac{5}{9}$	M1 M1 A1 A1 (4)
(c)	$P(A' \cap B) = \frac{3}{4} \times \frac{5}{9} = \frac{15}{36} = \frac{5}{12}$	M1A1ft (2)
(d)	$P(B A) = \frac{(1-(b)) \times 0.25}{0.25} \quad \text{or } P(B') \text{ or } \frac{1}{4}$ $= \frac{4}{9}$	M1 A1 (2)

Question 2

(a)	$P(A \cup B) = 0.35 + 0.45 - 0.13$ <p style="text-align: center;">or $0.22 + 0.13 + 0.32$</p> $= \underline{\underline{0.67}}$	M1 A1 (2)
(b)	$P(A' B') = \frac{P(A' \cap B')}{P(B')}$ <p style="text-align: center;">or $\frac{0.33}{0.55}$</p> $= \frac{3}{5} \text{ or } 0.6$	M1 A1 (2)
(c)	$P(B \cap C) = 0.45 \times 0.2$ $= \underline{\underline{0.09}}$	M1 A1 (2)
(d)	 <div style="border: 1px solid black; padding: 5px; margin-left: 20px;"> <p>Allow 1st B1 for 3 intersecting circles in a box with zeros in the regions for $A \cap C$ Do not accept "blank" for zero</p> </div>	B1 B1ft B1 B1 (4)
(e)	$P(B \cup C)' = 0.22 + \underline{\underline{0.22}} \text{ or } 1 - [0.56] \text{ or } 1 - [0.13 + 0.23 + 0.09 + 0.11] \text{ o.e.}$ $= \underline{\underline{0.44}}$	M1 A1 (2)