

Pearson Edexcel A Level Mathematics 9MA0

Statistics – Probability

Time allowed: 45 minutes

School: www.CasperYC.club

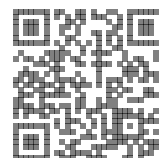
Name:

Teacher:

How I can achieve better:

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Question	Points	Score
1	10	
2	8	
3	11	
4	10	
5	11	
Total:	50	



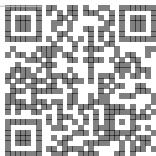
1. The table below shows the number of gold, silver and bronze medals won by two teams in an athletics competition.


	Gold	Silver	Bronze
Team A	29	17	18
Team C	21	23	17

The events G , S and B are that a medal is gold, silver or bronze respectively. Let A be the event that team A won a medal and C team C won a medal. A medal winner is selected at random. Find

- (a) $\Pr(G)$ [2]
- (b) $\Pr([AS]')$ [2]
- (c) Explain, showing your working, whether or not events S and A are statistically independent. [2]
Give reasons for your answer.
- (d) Determine whether or not events B and C are mutually exclusive. Give a reason for your answer. [2]
- (e) Given that 30% of the gold medal winners are female, 60% of the silver medal winners are female and 40% of the bronze medal winners are female, find the probability that a randomly selected medal winner is female. [2]

Total: 10





3.

$$\Pr(E) = 0.25 \quad \text{and} \quad \Pr(F) = 0.4 \quad \text{and} \quad \Pr(EF) = 0.12$$

- (a) Find $\Pr(E'|F')$. [2]

- (b) Explain, showing your working, whether or not E and F are statistically independent. [2]

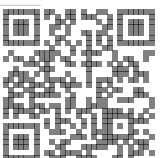
The event G has $\Pr(G) = 0.15$.

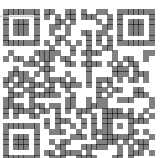
The events E and G are mutually exclusive and the events F and G are independent.

- (c) Draw a Venn diagram to illustrate the events E, F and G , giving the probabilities for each region. [5]

- (d) Find $\Pr([FG]')$. [2]

Total: 11





5. A group of students were surveyed by a principal and $\frac{2}{3}$ were found to always hand in assignments on time. When questioned about their assignments $\frac{3}{5}$ said they always start their assignments on the day they are issued and, of those who always start their assignments on the day they are issued, $\frac{11}{20}$ hand them in on time.

- (a) Draw a tree diagram to represent this information. [3]
- (b) Find the probability that a randomly selected student:
 - i. always start their assignments on the day they are issued and hand them in on time. [2]
 - ii. does not always hand in assignments on time and does not start their assignments on the day they are issued. [4]
- (c) Determine whether or not always starting assignments on the day they are issued and handing them in on time are statistically independent. Give reasons for your answer. [2]

Total: 11

