



H15-10min Conditional Probability (Higher): 10-minute Pack

EDEXCEL 1ST0 · Calculator allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / ____

Answer ALL questions. Show all your working.

- 1** A drawer contains 7 socks: 4 black and 3 grey, all otherwise identical. Nadia takes a sock at random from the drawer and does not put it back. She then takes a second sock at random from the drawer.

(a) Find the probability that both socks are black. (2)

.....
(b) Find the probability that both socks are grey. (2)

.....
(c) Find the probability that Nadia takes one sock of each colour. (2)

.....
(Total for Question 1 is 6 marks)

2 For events A and B, $P(B) = 0.6$ and $P(A|B) = 0.45$.

(a) State the formula linking $P(A \text{ and } B)$, $P(B)$ and $P(A|B)$. (1)

(b) Use the formula to find $P(A \text{ and } B)$. (2)

(c) Given also that $P(A) = 0.3$, determine, giving a reason, whether events A and B are independent. (2)

(Total for Question 2 is 5 marks)

Mark scheme • H15-10min Conditional Probability (Higher): 10-minute Pack

Question 1

- (a) **M1** $\frac{4}{7} \times \frac{3}{6}$, oe
- (a) **A1** $\frac{2}{7}$ oe cao
- **(a) Answer: $\frac{2}{7}$**
- (b) **M1** $\frac{3}{7} \times \frac{2}{6}$, oe
- (b) **A1** $\frac{1}{7}$ oe cao
- **(b) Answer: $\frac{1}{7}$**
- (c) **M1** 1 - their (a) - their (b), or $\frac{4}{7} \times \frac{3}{6} + \frac{3}{7} \times \frac{4}{6}$, oe
- (c) **A1** $\frac{4}{7}$ oe cao
- **(c) Answer: $\frac{4}{7}$**

Question 2

- (a) **B1** $P(A \text{ and } B) = P(B) \times P(A|B)$, oe
- **(a) Answer: $P(A \text{ and } B) = P(B) \times P(A|B)$**
- (b) **M1** 0.6×0.45 , oe
- (b) **A1** 0.27 cao
- **(b) Answer: 0.27**
- (c) **M1** compares $P(A|B) = 0.45$ with $P(A) = 0.3$
- (c) **A1** correct conclusion: not independent, since $P(A|B)$ does not equal $P(A)$
- **(c) Answer: Not independent, since $P(A|B) = 0.45$ does not equal $P(A) = 0.3$.**