2.7 Statistics: Probability Depth: 10-minute Pack

EDEXCEL 9MA0 · Calculator allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

A-Level Statistics: Probability Depth Practice

Original material written for Revision Library, styled on Edexcel AS/A-level Mathematics (9MA0) Statistics content.

This pack extends core probability skills to full A-level depth: Venn diagrams and set notation for two and three events, tree diagrams for dependent and independent trials, conditional probability, testing and proving independence algebraically, and probability models involving an unknown to be found from a given equation, including quadratics arising from probability statements. All contexts and figures are original.

1 For events F and G, P(F) = 0.6, P(G|F) = 0.25 and P(G|not F) = p, where p is a constant. It is given that P(G) = 0.34.

(a) Find the value of p. **(3)**

(b) Find P(F | G). **(3)**

(c) Find P(not F | not G). **(3)**

(Total for Question 1 is 9 marks)

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Mark scheme · 2.7 Statistics: Probability Depth: 10-minute Pack

Question 1

(a) P(F and G) = P(F) x P(G|F) = 0.6 x 0.25 = 0.15	**M1**
(a) use P(G) = P(F and G) + P(not F) x p, i.e. 0.34 = 0.15 + 0.4p	**M1**
(a) cao p = 0.475	**A1**
(a) Answer: p = 0.475	
(b) identify P(F and G) = 0.15 (ft from a)	**M1**
(b) divide by P(G) = 0.34	**M1**
(b) cao 15/34 (awrt 0.441)	**A1**
(b) Answer: P(F | G) = 15/34 (awrt 0.441)	
(c) P(F or G) = P(F) + P(G) - P(F and G) = 0.6 + 0.34 - 0.15 = 0.79, then P(not F and not G) = 1 - 0.79	**M1**
(c) P(not G) = 1 - 0.34 = 0.66, then divide: 0.21/0.66	**M1**
(c) cao 7/22 (awrt 0.318)	**A1**
(c) Answer: P(not F | not G) = 7/22 (awrt 0.318)	

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