2.3 Statistics: Probability: 10-minute Pack

EDEXCEL 9MA0 · Calculator allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 At a sixth form college, 120 students were surveyed about the subjects they study. Let M be the event that a randomly chosen student studies Mathematics and P be the event that a randomly chosen student studies Physics. From the survey, P(M) = 0.65, P(P) = 0.40 and P(M and P) = 0.25.

(a) Find P(M or P). **(2)**

(b) Find P(M and not P), the probability that a randomly chosen student studies Mathematics but not Physics. **(2)**

(c) Determine, showing your working, whether the events M and P are independent. **(3)**

(d) Find P(not M and not P). **(2)**

(Total for Question 1 is 9 marks)

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Mark scheme · 2.3 Statistics: Probability: 10-minute Pack

Question 1

(a) P(M) + P(P) - P(M and P)	**M1**
(a) cao 0.80	**A1**
(a) Answer: P(M or P) = 0.80	
(b) P(M) - P(M and P)	**M1**
(b) cao 0.40	**A1**
(b) Answer: P(M and not P) = 0.40	
(c) compute P(M) x P(P) = 0.65 x 0.40	**M1**
(c) P(M) x P(P) = 0.26	**A1**
(c) cso: 0.26 does not equal 0.25 (=P(M and P)), so M and P are not independent	**A1**
(c) Answer: Not independent, since P(M)P(P) = 0.26 not equal to P(M and P) = 0.25	
(d) 1 - P(M or P), following through from part (a)	**M1ft**
(d) cao 0.20	**A1ft**
(d) Answer: P(not M and not P) = 0.20	

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