2.12 Probability (Foundation): 30-minute Pack

EDEXCEL 1MA1 · Calculator allowed · about 30 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 A box contains 12 balls. All of the balls are yellow. A ball is taken from the box at random.

(a) Write down the probability that the ball is yellow. **(1)**

.....

(b) Write down the probability that the ball is green. **(1)**

.....

(Total for Question 1 is 2 marks)

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2 A letter is chosen at random from the word STATISTICS.

(a) Work out the probability that the letter chosen is S. **(1)**

.....

(b) Work out the probability that the letter chosen is not a vowel. **(1)**

.....

(Total for Question 2 is 2 marks)

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3 The probability that a train is late is 0.12.

(a) Work out the probability that a train is not late. **(1)**

.....

(b) There are 250 trains in total. Work out an estimate for the number of trains that are not late. **(2)**

.....

(Total for Question 3 is 3 marks)

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4 A bag contains only red counters and blue counters. The ratio of red counters to blue counters is 3:5.

(a) A counter is taken from the bag at random. Work out the probability that it is blue. **(2)**

.....

(b) There are 40 counters in the bag altogether. Work out the number of red counters in the bag. **(2)**

.....

(Total for Question 4 is 4 marks)

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5 Sara has 3 T-shirts (red, blue, green) and 2 pairs of shorts (black, white). She picks one T-shirt and one pair of shorts at random to make an outfit.

(a) List all the possible different outfits Sara could make. **(2)**

(b) Sara picks an outfit at random. Work out the probability that she picks the red T-shirt with the black shorts. **(1)**

.....

(Total for Question 5 is 3 marks)

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6 A fair coin is flipped and a fair spinner with sections numbered 1, 2 and 3 is spun.

Coin

Spinner	H	T
1	H1	
2		
3		T3

(a) Complete the sample space diagram to show all the possible outcomes. **(2)**

(b) Work out the probability of getting a head and an odd number. **(1)**

.....

(Total for Question 6 is 3 marks)

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7 90 students in Year 10 and Year 11 each choose one of Drama, Art or Music. The two-way table shows some of the information.

	Drama	Art	Music	Total
Year 10	14		10	40
Year 11				
Total	30		32	90

(a) Complete the two-way table. **(3)**

(b) A student is chosen at random from Year 11. Work out the probability that this student chose Music. **(1)**

.....

(Total for Question 7 is 4 marks)

8 A café meal deal lets a customer choose one sandwich from cheese, tuna or ham, and one drink from tea, juice, water or hot chocolate.

(a) List all the possible sandwich-and-drink combinations a customer could choose. **(2)**

(b) A customer chooses a sandwich and a drink at random. Find the probability that they choose tuna and hot chocolate. **(1)**

.....

(Total for Question 8 is 3 marks)

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Mark scheme · 2.12 Probability (Foundation): 30-minute Pack

Question 1

(a) 1 cao (accept 'certain') **B1**

(a) Answer: 1

(b) 0 cao (accept 'impossible') **B1**

(b) Answer: 0

Question 2

(a) 3/10 oe **B1**

(a) Answer: 3/10

(b) 7/10 oe, ft their vowel count **B1**

(b) Answer: 7/10

Question 3

(a) 0.88 cao **B1**

(a) Answer: 0.88

(b) 0.88 x 250, ft their (a) **M1**

(b) 220 cao **A1**

(b) Answer: 220 trains

Question 4

(a) 3 + 5 (= 8) to find the total number of ratio parts **M1**

(a) 5/8 oe cao **A1**

(a) Answer: 5/8

(b) 40 / 8 (= 5) to find the value of one ratio part **M1**

(b) 15 cao **A1**

(b) Answer: 15

Question 5

(a) at least 4 correct, distinct outfits listed with a systematic attempt **M1**

(a) all 6 outfits listed correctly with no repeats: (red,black) (red,white) (blue,black) (blue,white) (green,black) (green,white) **A1**

(a) Answer: (red,black), (red,white), (blue,black), (blue,white), (green,black), (green,white)

(b) 1/6 oe, ft their (a) **B1**

(b) Answer: 1/6

Question 6

(a) at least 4 of the 6 outcomes shown correctly **M1**

(a) all 6 outcomes shown correctly: H1, H2, H3, T1, T2, T3 **A1**

(a) Answer: H1, H2, H3, T1, T2, T3

(b) 1/3 oe (accept 2/6), ft their (a) **B1**

(b) Answer: 1/3

Question 7

(a) 40 - 14 - 10 (= 16) to find Year 10 Art **M1**

(a) 30 - 14 (= 16) to find Year 11 Drama, or a correct method for another missing value **M1**

(a) all remaining values correct: Year 11 Art = 12, Year 11 Music = 22, Art total = 28, Year 11 total = 50 **A1**

(a) Answer: Year 10 Art = 16; Year 11 Drama = 16, Art = 12, Music = 22, Total = 50; Art total = 28

(b) 11/25 oe (accept 22/50), ft their (a) **B1**

(b) Answer: 11/25

Question 8

(a) at least 8 of the 12 combinations listed correctly, in a systematic order **M1**

(a) all 12 combinations listed correctly, oe **A1**

(a) Answer: cheese-tea, cheese-juice, cheese-water, cheese-hot chocolate, tuna-tea, tuna-juice, tuna-water, tuna-hot chocolate, ham-tea, ham-juice, ham-water, ham-hot chocolate

(b) 1/12 ft from part (a) **B1**

(b) Answer: 1/12

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