HIGHER

7.17 Conditional Probability: 10-minute Pack

EDEXCEL 1MA1 · Calculator allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 A jar contains 6 sweets: 2 red and 4 green. Two sweets are taken without replacement. Work out the probability that the second sweet is green given that the first sweet was red.

(Total for Question 1 is 1 mark)

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2 150 members of a gym were asked whether they prefer cardio or weights training. The two-way table shows the results.

Cardio Weights Total
Under 30 38 22 60
30 or over 34 56 90
Total 72 78 150

Gym members: age band vs training preference

	Cardio	Weights	Total
Under 30	38	22	60
30 or over	34	56	90
Total	72	78	150

(a) One member is chosen at random from those aged 30 or over. Find the probability that this member prefers weights training. **(2)**

.....

(b) One member is chosen at random from those who prefer cardio. Find the probability that this member is aged under 30. **(2)**

.....

(Total for Question 2 is 4 marks)

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3 A bag contains 10 counters, r of which are red; the rest are green. Two counters are taken at random from the bag, one after another, without replacement. The probability that both counters are red is 1/15.

(a) Find the value of r. **(4)**

.....

(Total for Question 3 is 4 marks)

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Mark scheme · 7.17 Conditional Probability: 10-minute Pack

A correct answer earns full marks unless the question asks for working, a method, proof or explanation.

Question 1

4/5 = 0.8 cao	**B1**

Answer: 4/5 (0.8) (cao)

Question 2

(a) 56/90 seen (oe unsimplified fraction)	**M1**
(a) 28/45 oe cao	**A1**

(a) Answer: 28/45

(b) 38/72 seen (oe unsimplified fraction)	**M1**
(b) 19/36 oe cao	**A1**

(b) Answer: 19/36

Question 3

(a) r/10 x (r-1)/9 formed as the probability of both red	**M1**
(a) sets equal to 1/15 and rearranges to a 3-term quadratic equal to zero (r^2 - r - 6 = 0 oe)	**M1**
(a) attempts to solve the quadratic, e.g. factorises as (r-3)(r+2) = 0	**M1**
(a) r = 3 cao, rejecting r = -2 as r must be a positive whole number	**A1**

(a) Answer: r = 3

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