HIGHER

5.5 The General Addition Law: 1-hour Pack

Total Marks

EDEXCEL 1ST0 · Calculator allowed · about 60 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 31 people were asked about two activities: A is that they take the bus; B is that they cycle. 7 people do A only, 12 do both A and B, 10 do B only, and 2 do neither.
(a) Work out the probability that a person chosen at random is in both A and B.
(b) Given that a person is in B, what is the probability that they are also in A?
(c) Given that a person is in A, what is the probability that they are also in B?
Give each answer as a fraction in its simplest form.

(Total for Question 1 is 6 marks)

2 37 people were asked about two activities: A is that they play football; B is that they play tennis. 20 people do A only, 4 do both A and B, 11 do B only, and 2 do neither.
(a) Work out the probability that a person chosen at random is in A.
(b) Work out the probability that a person chosen at random is in both A and B.
(c) Work out the probability that a person chosen at random is in neither A nor B.
Give each answer as a fraction in its simplest form.

(Total for Question 2 is 6 marks)

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3 22 people were asked about two activities: A is that they take the bus; B is that they cycle. 5 people do A only, 1 do both A and B, 10 do B only, and 6 do neither.

(a) Work out the probability that a person chosen at random is in both A and B.

(b) Given that a person is in B, what is the probability that they are also in A?

(c) Given that a person is in A, what is the probability that they are also in B?

Give each answer as a fraction in its simplest form.

(Total for Question 3 is 6 marks)

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4 43 people were asked about two activities: A is that they take the bus; B is that they cycle. 19 people do A only, 7 do both A and B, 5 do B only, and 12 do neither.

(a) Work out the probability that a person chosen at random is in A.

(b) Work out the probability that a person chosen at random is not in B.

(c) Work out the probability that a person chosen at random is in both A and B.

Give each answer as a fraction in its simplest form.

(Total for Question 4 is 6 marks)

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5 47 people were asked about two activities: A is that they have a dog; B is that they have a cat.
18 people do A only, 11 do both A and B, 8 do B only, and 10 do neither.
(a) Work out the probability that a person chosen at random is in A.
(b) Work out the probability that a person chosen at random is not in B.
(c) Work out the probability that a person chosen at random is in both A and B.
Give each answer as a fraction in its simplest form.

(Total for Question 5 is 6 marks)

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6 26 people were asked about two activities: A is that they study French; B is that they study Spanish. 2 people do A only, 3 do both A and B, 14 do B only, and 7 do neither.
(a) Work out the probability that a person chosen at random is in neither A nor B.
(b) Work out the probability that a person chosen at random is in at least one of A and B.
(c) Given that a person is in A, what is the probability that they are also in B?
Give each answer as a fraction in its simplest form.

(Total for Question 6 is 6 marks)

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7 54 people were asked about two activities: A is that they study French; B is that they study Spanish. 20 people do A only, 9 do both A and B, 17 do B only, and 8 do neither.

(a) Work out the probability that a person chosen at random is in A.

(b) Work out the probability that a person chosen at random is in both A and B.

(c) Work out the probability that a person chosen at random is in at least one of A and B.

Give each answer as a fraction in its simplest form.

(Total for Question 7 is 6 marks)

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8 52 people were asked about two activities: A is that they like tea; B is that they like coffee. 17 people do A only, 7 do both A and B, 19 do B only, and 9 do neither.

(a) Work out the probability that a person chosen at random is in A.

(b) Work out the probability that a person chosen at random is not in B.

(c) Work out the probability that a person chosen at random is in both A and B.

Give each answer as a fraction in its simplest form.

(Total for Question 8 is 6 marks)

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9 26 people were asked about two activities: A is that they like tea; B is that they like coffee. 4 people do A only, 12 do both A and B, 4 do B only, and 6 do neither.

(a) Work out the probability that a person chosen at random is in both A and B.

(b) Given that a person is in B, what is the probability that they are also in A?

(c) Given that a person is in A, what is the probability that they are also in B?

Give each answer as a fraction in its simplest form.

(Total for Question 9 is 6 marks)

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10 40 people were asked about two activities: A is that they have a dog; B is that they have a cat. 13 people do A only, 4 do both A and B, 13 do B only, and 10 do neither.

(a) Work out the probability that a person chosen at random is in A.

(b) Work out the probability that a person chosen at random is in both A and B.

(c) Work out the probability that a person chosen at random is in neither A nor B.

Give each answer as a fraction in its simplest form.

(Total for Question 10 is 6 marks)

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Mark scheme · 5.5 The General Addition Law: 1-hour Pack

Question 1

identifies the relevant frequencies	**M1**
12/31 oe	**A1**
identifies the restricted group (the denominator)	**M1**
6/11 oe	**A1**
identifies the restricted group (the denominator)	**M1**
12/19 oe	**A1**

Answer: (a) 12/31; (b) 6/11; (c) 12/19

Question 2

identifies the relevant frequencies	**M1**
24/37 oe	**A1**
identifies the relevant frequencies	**M1**
4/37 oe	**A1**
identifies the relevant frequencies	**M1**
2/37 oe	**A1**

Answer: (a) 24/37; (b) 4/37; (c) 2/37

Question 3

identifies the relevant frequencies	**M1**
1/22 oe	**A1**
identifies the restricted group (the denominator)	**M1**
1/11 oe	**A1**
identifies the restricted group (the denominator)	**M1**
1/6 oe	**A1**

Answer: (a) 1/22; (b) 1/11; (c) 1/6

Question 4

identifies the relevant frequencies	**M1**
26/43 oe	**A1**
identifies the relevant frequencies	**M1**
31/43 oe	**A1**
identifies the relevant frequencies	**M1**
7/43 oe	**A1**

Answer: (a) 26/43; (b) 31/43; (c) 7/43

Question 5

identifies the relevant frequencies	**M1**
29/47 oe	**A1**
identifies the relevant frequencies	**M1**
28/47 oe	**A1**
identifies the relevant frequencies	**M1**
11/47 oe	**A1**

Answer: (a) 29/47; (b) 28/47; (c) 11/47

Question 6

identifies the relevant frequencies	**M1**
7/26 oe	**A1**
identifies the relevant frequencies	**M1**
19/26 oe	**A1**
identifies the restricted group (the denominator)	**M1**
3/5 oe	**A1**

Answer: (a) 7/26; (b) 19/26; (c) 3/5

Question 7

identifies the relevant frequencies	**M1**
29/54 oe	**A1**
identifies the relevant frequencies	**M1**
1/6 oe	**A1**
identifies the relevant frequencies	**M1**
23/27 oe	**A1**

Answer: (a) 29/54; (b) 1/6; (c) 23/27

Question 8

identifies the relevant frequencies	**M1**
6/13 oe	**A1**
identifies the relevant frequencies	**M1**
1/2 oe	**A1**
identifies the relevant frequencies	**M1**
7/52 oe	**A1**

Answer: (a) 6/13; (b) 1/2; (c) 7/52

Question 9

identifies the relevant frequencies	**M1**
6/13 oe	**A1**
identifies the restricted group (the denominator)	**M1**
3/4 oe	**A1**
identifies the restricted group (the denominator)	**M1**
3/4 oe	**A1**

Answer: (a) 6/13; (b) 3/4; (c) 3/4

Question 10

identifies the relevant frequencies	**M1**
17/40 oe	**A1**
identifies the relevant frequencies	**M1**
1/10 oe	**A1**
identifies the relevant frequencies	**M1**
1/4 oe	**A1**

Answer: (a) 17/40; (b) 1/10; (c) 1/4

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