2.104 Two-Way Tables and Venn Diagram Reasoning: 1-hour Pack

Total Marks

GL ASSESSMENT GL-11PLUS-MATHS · Calculators not allowed · about 60 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 In a class of 27 pupils, 8 like pizza, 15 like pasta and 4 do both. How many pupils do at least one of the activities?

- ☐ A) 23
- ☐ B) 20
- ☐ C) 4
- ☐ D) 19
- ☐ E) 8

---

2 In a class of 38 pupils, 18 play football, 21 play tennis and 4 do both. How many pupils do neither?

- ☐ A) 3
- ☐ B) 14
- ☐ C) 7
- ☐ D) 4
- ☐ E) 39

---

3 In a class of 54 pupils, 46 have a dog, 22 have a cat and 18 do both. How many pupils do at least one of the activities?

- ☐ A) 51
- ☐ B) 50
- ☐ C) 22
- ☐ D) 68
- ☐ E) 4

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4 In a class of 26 pupils, 8 study French, 9 study Spanish and 3 do both. How many pupils do neither?

- [ ] A) 5
- [ ] B) 9
- [ ] C) 17
- [ ] D) 12
- [ ] E) 13

---

5 In a class of 33 pupils, 16 play football, 16 play tennis and 4 do both. How many pupils do only the second activity (play tennis)?

- [ ] A) 12
- [ ] B) 11
- [ ] C) 1
- [ ] D) 28
- [ ] E) 32

---

6 In a class of 48 pupils, 21 study French, 30 study Spanish and 13 do both. How many pupils do only the second activity (study Spanish)?

- [ ] A) 18
- [ ] B) 51
- [ ] C) 17
- [ ] D) 8
- [ ] E) 23

---

7 In a class of 48 pupils, 28 have a dog, 21 have a cat and 17 do both. How many pupils do only the first activity (have a dog)?

- [ ] A) 49
- [ ] B) 10
- [ ] C) 4
- [ ] D) 33
- [ ] E) 11

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8 In a class of 34 pupils, 22 like pizza, 15 like pasta and 6 do both. How many pupils do only the first activity (like pizza)?

- ☐ A) 37
- ☐ B) 9
- ☐ C) 31
- ☐ D) 16
- ☐ E) 15

---

9 In a class of 42 pupils, 21 play football, 9 play tennis and 6 do both. How many pupils do at least one of the activities?

- ☐ A) 30
- ☐ B) 18
- ☐ C) 25
- ☐ D) 12
- ☐ E) 24

---

10 In a class of 32 pupils, 19 study French, 11 study Spanish and 7 do both. How many pupils do at least one of the activities?

- ☐ A) 2
- ☐ B) 30
- ☐ C) 23
- ☐ D) 9
- ☐ E) 16

---

11 In a class of 60 pupils, 17 play football, 22 play tennis and 8 do both. How many pupils do only the first activity (play football)?

- ☐ A) 9
- ☐ B) 10
- ☐ C) 21
- ☐ D) 31
- ☐ E) 39

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12 In a class of 50 pupils, 26 play football, 12 play tennis and 7 do both. How many pupils do only the second activity (play tennis)?

- [ ] A) 12
- [ ] B) 5
- [ ] C) 4
- [ ] D) 26
- [ ] E) 38

---

13 In a class of 38 pupils, 31 play football, 22 play tennis and 17 do both. How many pupils do only the first activity (play football)?

- [ ] A) 19
- [ ] B) 13
- [ ] C) 14
- [ ] D) 53
- [ ] E) 15

---

14 In a class of 56 pupils, 37 study French, 20 study Spanish and 19 do both. How many pupils do only the first activity (study French)?

- [ ] A) 37
- [ ] B) 19
- [ ] C) 18
- [ ] D) 57
- [ ] E) 17

---

15 In a class of 20 pupils, 14 play football, 9 play tennis and 6 do both. How many pupils do at least one of the activities?

- [ ] A) 8
- [ ] B) 17
- [ ] C) 23
- [ ] D) 3
- [ ] E) 9

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16 In a class of 40 pupils, 11 study French, 18 study Spanish and 9 do both. How many pupils do only the first activity (study French)?

- [ ] A) 2
- [ ] B) 20
- [ ] C) 29
- [ ] D) 11
- [ ] E) 9

---

17 In a class of 45 pupils, 31 have a dog, 24 have a cat and 18 do both. How many pupils do only the second activity (have a cat)?

- [ ] A) 26
- [ ] B) 55
- [ ] C) 6
- [ ] D) 37
- [ ] E) 7

---

18 In a class of 59 pupils, 20 study French, 23 study Spanish and 9 do both. How many pupils do only the first activity (study French)?

- [ ] A) 14
- [ ] B) 16
- [ ] C) 43
- [ ] D) 11
- [ ] E) 10

---

19 In a class of 53 pupils, 13 like pizza, 46 like pasta and 11 do both. How many pupils do neither?

- [ ] A) 5
- [ ] B) 59
- [ ] C) 48
- [ ] D) 16
- [ ] E) 6

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20 In a class of 43 pupils, 27 play football, 16 play tennis and 10 do both. How many pupils do neither?

- [ ] A) 43
- [ ] B) 20
- [ ] C) 17
- [ ] D) 10
- [ ] E) 0

---

21 In a class of 37 pupils, 26 play football, 16 play tennis and 9 do both. How many pupils do only the first activity (play football)?

- [ ] A) 16
- [ ] B) 13
- [ ] C) 42
- [ ] D) 17
- [ ] E) 18

---

22 In a class of 26 pupils, 15 play football, 11 play chess and 6 play both football and chess. How many pupils play neither football nor chess?

- [ ] A) 4
- [ ] B) 6
- [ ] C) 7
- [ ] D) 8
- [ ] E) 10

---

23 In a class of 22 pupils, 16 study French, 13 study Spanish and 10 do both. How many pupils do only the second activity (study Spanish)?

- [ ] A) 19
- [ ] B) 13
- [ ] C) 3
- [ ] D) 6
- [ ] E) 29

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24 In a class of 58 pupils, 17 like pizza, 39 like pasta and 11 do both. How many pupils do only the first activity (like pizza)?

- [ ] A) 6
- [ ] B) 56
- [ ] C) 2
- [ ] D) 45
- [ ] E) 28

---

25 In a class of 31 pupils, 9 like pizza, 20 like pasta and 6 do both. How many pupils do neither?

- [ ] A) 29
- [ ] B) 8
- [ ] C) 2
- [ ] D) 9
- [ ] E) 3

---

26 In a class of 43 pupils, 9 study French, 19 study Spanish and 4 do both. How many pupils do only the second activity (study Spanish)?

- [ ] A) 15
- [ ] B) 24
- [ ] C) 5
- [ ] D) 23
- [ ] E) 28

---

27 In a class of 48 pupils, 26 like pizza, 16 like pasta and 2 do both. How many pupils do neither?

- [ ] A) 6
- [ ] B) 24
- [ ] C) 8
- [ ] D) 42
- [ ] E) 9

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28 In a class of 45 pupils, 20 study French, 16 study Spanish and 1 do both. How many pupils do at least one of the activities?

- [ ] A) 34
- [ ] B) 19
- [ ] C) 36
- [ ] D) 9
- [ ] E) 35

---

29 In a class of 42 pupils, 8 play football, 36 play tennis and 4 do both. How many pupils do only the second activity (play tennis)?

- [ ] A) 6
- [ ] B) 32
- [ ] C) 33
- [ ] D) 31
- [ ] E) 44

---

30 In a class of 23 pupils, 13 like pizza, 8 like pasta and 6 do both. How many pupils do only the first activity (like pizza)?

- [ ] A) 2
- [ ] B) 7
- [ ] C) 14
- [ ] D) 21
- [ ] E) 8

---

31 In a class of 21 pupils, 11 have a dog, 8 have a cat and 5 do both. How many pupils do neither?

- [ ] A) 2
- [ ] B) 19
- [ ] C) 7
- [ ] D) 14
- [ ] E) 6

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32 In a class of 59 pupils, 31 study French, 29 study Spanish and 26 do both. How many pupils do only the first activity (study French)?

- [ ] A) 5
- [ ] B) 60
- [ ] C) 4
- [ ] D) 6
- [ ] E) 51

---

33 In a class of 49 pupils, 24 have a dog, 8 have a cat and 4 do both. How many pupils do neither?

- [ ] A) 22
- [ ] B) 20
- [ ] C) 17
- [ ] D) 21
- [ ] E) 32

---

34 In a class of 57 pupils, 12 have a dog, 25 have a cat and 9 do both. How many pupils do only the first activity (have a dog)?

- [ ] A) 37
- [ ] B) 3
- [ ] C) 38
- [ ] D) 4
- [ ] E) 20

---

35 In a class of 29 pupils, 19 like pizza, 8 like pasta and 4 do both. How many pupils do neither?

- [ ] A) 5
- [ ] B) 27
- [ ] C) 2
- [ ] D) 10
- [ ] E) 6

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36 In a class of 42 pupils, 31 study French, 31 study Spanish and 26 do both. How many pupils do only the second activity (study Spanish)?

- [ ] A) 36
- [ ] B) 62
- [ ] C) 4
- [ ] D) 5
- [ ] E) 32

---

37 In a class of 52 pupils, 14 have a dog, 13 have a cat and 6 do both. How many pupils do only the first activity (have a dog)?

- [ ] A) 8
- [ ] B) 37
- [ ] C) 25
- [ ] D) 27
- [ ] E) 7

---

38 In a class of 55 pupils, 20 have a dog, 42 have a cat and 16 do both. How many pupils do only the second activity (have a cat)?

- [ ] A) 27
- [ ] B) 62
- [ ] C) 26
- [ ] D) 25
- [ ] E) 46

---

39 In a class of 20 pupils, 8 like pizza, 9 like pasta and 5 do both. How many pupils do at least one of the activities?

- [ ] A) 11
- [ ] B) 12
- [ ] C) 17
- [ ] D) 13
- [ ] E) 3

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40 A factory has morning and evening shifts. The table shows how many workers of each sex work each shift.

	Morning	Evening
Male	13	11
Female	17	19

How many females work the morning shift?

- [ ] A) 17
- [ ] B) 11
- [ ] C) 30
- [ ] D) 13
- [ ] E) 6

---

41 In a class of 44 pupils, 27 study French, 34 study Spanish and 21 do both. How many pupils do neither?

- [ ] A) 25
- [ ] B) 5
- [ ] C) 3
- [ ] D) 4
- [ ] E) 61

---

42 In a class of 35 pupils, 19 like pizza, 23 like pasta and 16 do both. How many pupils do at least one of the activities?

- [ ] A) 26
- [ ] B) 9
- [ ] C) 25
- [ ] D) 42
- [ ] E) 3

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43 In a class of 41 pupils, 14 play football, 17 play tennis and 1 do both. How many pupils do only the first activity (play football)?

- [ ] A) 13
- [ ] B) 10
- [ ] C) 31
- [ ] D) 30
- [ ] E) 12

---

44 In a class of 47 pupils, 20 like pizza, 36 like pasta and 15 do both. How many pupils do only the first activity (like pizza)?

- [ ] A) 21
- [ ] B) 41
- [ ] C) 56
- [ ] D) 5
- [ ] E) 4

---

45 In a class of 32 pupils, 21 play football, 11 play tennis and 8 do both. How many pupils do neither?

- [ ] A) 32
- [ ] B) 8
- [ ] C) 0
- [ ] D) 7
- [ ] E) 9

---

46 In a class of 30 pupils, 20 study French, 12 study Spanish and 10 do both. How many pupils do neither?

- [ ] A) 10
- [ ] B) 9
- [ ] C) 32
- [ ] D) 18
- [ ] E) 8

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47 In a class of 49 pupils, 12 study French, 35 study Spanish and 8 do both. How many pupils do only the first activity (study French)?

- [ ] A) 5
- [ ] B) 47
- [ ] C) 2
- [ ] D) 18
- [ ] E) 4

---

48 In a class of 54 pupils, 33 like pizza, 9 like pasta and 2 do both. How many pupils do neither?

- [ ] A) 14
- [ ] B) 31
- [ ] C) 12
- [ ] D) 40
- [ ] E) 42

---

49 The table below shows a small cinema's customers.

	Child	Adult
Matinee	9	13
Evening	7	15

How many adults attended the cinema in total?

- [ ] A) 13
- [ ] B) 15
- [ ] C) 28
- [ ] D) 22
- [ ] E) 16

---

50 In a class of 22 pupils, 11 study French, 13 study Spanish and 6 do both. How many pupils do only the first activity (study French)?

- [ ] A) 10
- [ ] B) 4
- [ ] C) 5
- [ ] D) 24
- [ ] E) 7

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51 In a class of 21 pupils, 13 like pizza, 9 like pasta and 3 do both. How many pupils do neither?

- [ ] A) 5
- [ ] B) 22
- [ ] C) 19
- [ ] D) 2
- [ ] E) 10

---

52 In a class of 52 pupils, 9 play football, 26 play tennis and 1 do both. How many pupils do at least one of the activities?

- [ ] A) 18
- [ ] B) 34
- [ ] C) 35
- [ ] D) 17
- [ ] E) 33

---

53 In a class of 57 pupils, 19 study French, 37 study Spanish and 13 do both. How many pupils do at least one of the activities?

- [ ] A) 1
- [ ] B) 14
- [ ] C) 6
- [ ] D) 56
- [ ] E) 43

---

54 In a class of 37 pupils, 18 play football, 10 play tennis and 4 do both. How many pupils do at least one of the activities?

- [ ] A) 13
- [ ] B) 24
- [ ] C) 23
- [ ] D) 9
- [ ] E) 28

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55 In a class of 48 pupils, 9 have a dog, 33 have a cat and 4 do both. How many pupils do at least one of the activities?

- [ ] A) 39
- [ ] B) 14
- [ ] C) 6
- [ ] D) 38
- [ ] E) 42

---

56 In a class of 31 pupils, 9 study French, 11 study Spanish and 4 do both. How many pupils do neither?

- [ ] A) 15
- [ ] B) 11
- [ ] C) 16
- [ ] D) 5
- [ ] E) 20

---

57 In a class of 26 pupils, 15 study French, 8 study Spanish and 1 do both. How many pupils do only the first activity (study French)?

- [ ] A) 7
- [ ] B) 14
- [ ] C) 3
- [ ] D) 23
- [ ] E) 22

---

58 In a class of 57 pupils, 24 have a dog, 25 have a cat and 7 do both. How many pupils do only the second activity (have a cat)?

- [ ] A) 17
- [ ] B) 22
- [ ] C) 18
- [ ] D) 8
- [ ] E) 49

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59 A questionnaire of 36 pupils recorded whether they like science and whether they like art. The table shows:

Like science only: 15
Like art only: 3
Like both: x
Total who like at least one subject: 30

How many like both science and art?

- [ ] A) 3
- [ ] B) 6
- [ ] C) 7
- [ ] D) 9
- [ ] E) 12

---

60 In a class of 26 pupils, 13 study French, 10 study Spanish and 4 do both. How many pupils do at least one of the activities?

- [ ] A) 3
- [ ] B) 20
- [ ] C) 23
- [ ] D) 19
- [ ] E) 7

---

61 In a class of 34 pupils, 18 play football, 10 play tennis and 2 do both. How many pupils do only the first activity (play football)?

- [ ] A) 26
- [ ] B) 28
- [ ] C) 10
- [ ] D) 6
- [ ] E) 16

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62 In a class of 28 pupils, 8 play football, 16 play tennis and 3 do both. How many pupils do only the first activity (play football)?

- [ ] A) 5
- [ ] B) 4
- [ ] C) 24
- [ ] D) 6
- [ ] E) 10

---

63 In a class of 39 pupils, 19 like pizza, 26 like pasta and 9 do both. How many pupils do at least one of the activities?

- [ ] A) 35
- [ ] B) 37
- [ ] C) 36
- [ ] D) 12
- [ ] E) 45

---

64 In a class of 36 pupils, 10 like pizza, 10 like pasta and 1 do both. How many pupils do neither?

- [ ] A) 16
- [ ] B) 20
- [ ] C) 9
- [ ] D) 17
- [ ] E) 19

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Mark scheme · 2.104 Two-Way Tables and Venn Diagram Reasoning: 1-hour Pack

Question 1

correct option D (19) cao **B1**

Answer: D) 19

Question 2

correct option A (3) cao **B1**

Answer: A) 3

Question 3

correct option B (50) cao **B1**

Answer: B) 50

Question 4

correct option D (12) cao **B1**

Answer: D) 12

Question 5

correct option A (12) cao **B1**

Answer: A) 12

Question 6

correct option C (17) cao **B1**

Answer: C) 17

Question 7

correct option E (11) cao **B1**

Answer: E) 11

Question 8

correct option D (16) cao **B1**

Answer: D) 16

Question 9

correct option E (24) cao **B1**

Answer: E) 24

Question 10

correct option C (23) cao **B1**

Answer: C) 23

Question 11

correct option A (9) cao **B1**

Answer: A) 9

Question 12

correct option B (5) cao **B1**

Answer: B) 5

Question 13

correct option C (14) cao **B1**

Answer: C) 14

Question 14

correct option C (18) cao **B1**

Answer: C) 18

Question 15

correct option B (17) cao **B1**

Answer: B) 17

Question 16

correct option A (2) cao **B1**

Answer: A) 2

Question 17

correct option C (6) cao **B1**

Answer: C) 6

Question 18

correct option D (11) cao **B1**

Answer: D) 11

Question 19

correct option A (5) cao **B1**

Answer: A) 5

Question 20

correct option D (10) cao **B1**

Answer: D) 10

Question 21

correct option D (17) cao **B1**

Answer: D) 17

Question 22

correct option B (6) cao **B1**

Answer:B) 6

Explanation: number playing at least one = 15 + 11 - 6 = 20, so neither = 26 - 20 = 6.

Question 23

correct option C (3) cao **B1**

Answer: C) 3

Question 24

correct option A (6) cao **B1**

Answer: A) 6

Question 25

correct option B (8) cao **B1**

Answer: B) 8

Question 26

correct option A (15) cao **B1**

Answer: A) 15

Question 27

correct option C (8) cao **B1**

Answer: C) 8

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Question 28

correct option E (35) cao **B1**

Answer: E) 35

Question 29

correct option B (32) cao **B1**

Answer: B) 32

Question 30

correct option B (7) cao **B1**

Answer: B) 7

Question 31

correct option C (7) cao **B1**

Answer: C) 7

Question 32

correct option A (5) cao **B1**

Answer: A) 5

Question 33

correct option D (21) cao **B1**

Answer: D) 21

Question 34

correct option B (3) cao **B1**

Answer: B) 3

Question 35

correct option E (6) cao **B1**

Answer: E) 6

Question 36

correct option D (5) cao **B1**

Answer: D) 5

Question 37

correct option A (8) cao **B1**

Answer: A) 8

Question 38

correct option C (26) cao **B1**

Answer: C) 26

Question 39

correct option B (12) cao **B1**

Answer: B) 12

Question 40

correct option A (17) cao **B1**

Answer: A) 17

Question 41

correct option D (4) cao **B1**

Answer: D) 4

Question 42

correct option A (26) cao **B1**

Answer: A) 26

Question 43

correct option A (13) cao **B1**

Answer: A) 13

Question 44

correct option D (5) cao **B1**

Answer: D) 5

Question 45

correct option B (8) cao **B1**

Answer: B) 8

Question 46

correct option E (8) cao **B1**

Answer: E) 8

Question 47

correct option E (4) cao **B1**

Answer: E) 4

Question 48

correct option A (14) cao **B1**

Answer: A) 14

Question 49

correct option C (28) cao **B1**

Answer: C) 28 (13 + 15 = 28 adults)

Question 50

correct option C (5) cao **B1**

Answer: C) 5

Question 51

correct option D (2) cao **B1**

Answer: D) 2

Question 52

correct option B (34) cao **B1**

Answer: B) 34

Question 53

correct option E (43) cao **B1**

Answer: E) 43

Question 54

correct option B (24) cao **B1**

Answer: B) 24

Question 55

correct option D (38) cao **B1**

Answer: D) 38

Question 56

correct option A (15) cao **B1**

Answer: A) 15

Question 57

correct option B (14) cao **B1**

Answer: B) 14

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Question 58

correct option C (18) cao **B1**

Answer: C) 18

Question 59

correct option E (12) cao **B1**

Answer:E) 12

Working: at least one = (science only) + (art only) + (both) = 15 + 3 + x = 18 + x = 30, so x = 12.

Question 60

correct option D (19) cao **B1**

Answer: D) 19

Question 61

correct option E (16) cao **B1**

Answer: E) 16

Question 62

correct option A (5) cao **B1**

Answer: A) 5

Question 63

correct option C (36) cao **B1**

Answer: C) 36

Question 64

correct option D (17) cao **B1**

Answer: D) 17

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