# 1.12 Collecting Data: 1-hour Pack

EDEXCEL 1ST0 · Calculator allowed · about 60 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

**Answer ALL questions. Show all your working.**

**1** 90 people were asked a question. The two-way table is partly complete.

| | like fruit | do not like fruit | Total |
|---|---|---|---|
| adults | ? | ? | 42 |
| children | 21 | 27 | 48 |
| Total | 52 | 38 | 90 |

Work out the missing values (shown as ?). Give them in the order they appear, reading across the rows.

**(Total for Question 1 is 3 marks)**

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**2** Here are the lengths, in centimetres, of 20 leaves.

33, 29, 32, 28, 7, 11, 8, 6, 6, 4, 32, 20, 27, 33, 9, 5, 5, 14, 3, 26

(a) Complete a grouped frequency table using the classes $0 < x \leq 10$, $10 < x \leq 20$, $20 < x \leq 30$, $30 < x \leq 40$.
(b) Write down the modal class.
(c) What fraction of the values are in the modal class? Give your answer in its simplest form.

**(Total for Question 2 is 4 marks)**


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**3** 62 people were asked a question. The two-way table is partly complete.

| | own a phone | do not own a phone | Total |
|---|---|---|---|
| adults | 10 | 28 | 38 |
| children | ? | ? | 24 |
| Total | 26 | 36 | 62 |

Work out the missing values (shown as ?). Give them in the order they appear, reading across the rows.

**(Total for Question 3 is 3 marks)**

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**4** Here are the ages, in years, of 20 members of a club.

50, 26, 15, 15, 46, 16, 59, 45, 29, 36, 13, 29, 40, 39, 35, 56, 19, 18, 43, 27

(a) Complete a grouped frequency table using the classes $0 < x \leq 10$, $10 < x \leq 20$, $20 < x \leq 30$, $30 < x \leq 40$, $40 < x \leq 50$, $50 < x \leq 60$.
(b) Write down the modal class.
(c) What fraction of the values are in the modal class? Give your answer in its simplest form.

**(Total for Question 4 is 4 marks)**


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**5** A tally chart shows the colours of cars passing a school. In the tally, each ||||/ stands for a group of 5.

| Category | Tally | |
|---|---|---|
| rain | ||||/ ||||/ ||||/ | |
| sun | ||||/ ||||/ | |
| cloud | ||||/ ||||/ |||| | |
| snow | ||||/ ||||/ | |

(a) Write down the frequency for each category.
(b) Work out the total frequency.
(c) What fraction of the total is cloud? Give your answer in its simplest form.

**(Total for Question 5 is 4 marks)**

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**6** 49 people were asked a question. The two-way table is partly complete.

| | own a phone | do not own a phone | Total |
|---|---|---|---|
| boys | 19 | ? | 28 |
| girls | ? | 11 | 21 |
| Total | 29 | 20 | 49 |

Work out the missing values (shown as ?). Give them in the order they appear, reading across the rows.

**(Total for Question 6 is 3 marks)**


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**7** Here are the masses, in kilograms, of 20 parcels.

7, 11, 34, 9, 6, 9, 31, 4, 26, 25, 39, 25, 38, 34, 23, 3, 38, 15, 7, 2

(a) Complete a grouped frequency table using the classes $0 < x \leq 10$, $10 < x \leq 20$, $20 < x \leq 30$, $30 < x \leq 40$.
(b) Write down the modal class.
(c) What fraction of the values are in the modal class? Give your answer in its simplest form.

**(Total for Question 7 is 4 marks)**

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**8** A tally chart shows the sports chosen at a club. In the tally, each ||||/ stands for a group of 5.

| Category | Tally |
|---|---|
| pizza | ||||/ ||||/ ||||/ |
| pasta | ||||/ ||||/ ||||/ |||| |
| curry | ||||/ ||||/ ||||/ ||| |
| salad | ||||/ ||||/ ||| |

(a) Write down the frequency for each category.
(b) Work out the total frequency.
(c) What fraction of the total is salad? Give your answer in its simplest form.

**(Total for Question 8 is 4 marks)**


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**9** 67 people were asked a question. The two-way table is partly complete.

| | walk | do not walk | Total |
|---|---|---|---|
| Year 10 | ? | ? | 33 |
| Year 11 | 25 | 9 | 34 |
| Total | 41 | 26 | 67 |

Work out the missing values (shown as ?). Give them in the order they appear, reading across the rows.

**(Total for Question 9 is 3 marks)**

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**10** A tally chart shows the ways pupils travel to school. In the tally, each ||||/ stands for a group of 5.

| Category | Tally |
|---|---|
| red | ||| |
| blue | ||||/ ||||/ | |
| silver | ||||/ ||||/ ||||/ ||| |
| black | ||||/ ||| |
| white | ||||/ ||||/ | |

(a) Write down the frequency for each category.
(b) Work out the total frequency.
(c) What fraction of the total is white? Give your answer in its simplest form.

**(Total for Question 10 is 4 marks)**


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**11** 63 people were asked a question. The two-way table is partly complete.

| | own a phone | do not own a phone | Total |
|---|---|---|---|
| adults | ? | 28 | 36 |
| children | 7 | ? | 27 |
| Total | 15 | 48 | 63 |

Work out the missing values (shown as ?). Give them in the order they appear, reading across the rows.

**(Total for Question 11 is 3 marks)**

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**12** Here are the lengths, in centimetres, of 20 leaves.

22, 37, 19, 15, 23, 29, 12, 25, 30, 25, 29, 29, 32, 31, 6, 32, 30, 30, 29, 5

(a) Complete a grouped frequency table using the classes $0 < x \leq 10$, $10 < x \leq 20$, $20 < x \leq 30$, $30 < x \leq 40$.
(b) Write down the modal class.
(c) What fraction of the values are in the modal class? Give your answer in its simplest form.

**(Total for Question 12 is 4 marks)**


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**13** 83 people were asked a question. The two-way table is partly complete.

| | walk | do not walk | Total |
|---|---|---|---|
| boys | ? | 14 | 54 |
| girls | 10 | ? | 29 |
| Total | 50 | 33 | 83 |

Work out the missing values (shown as ?). Give them in the order they appear, reading across the rows.

**(Total for Question 13 is 3 marks)**

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**14** Here are the number of minutes 20 customers waited in a queue.

35, 18, 6, 6, 14, 5, 6, 1, 26, 32, 10, 29, 34, 14, 21, 37, 36, 17, 31, 9

(a) Complete a grouped frequency table using the classes $0 < x \leq 10$, $10 < x \leq 20$, $20 < x \leq 30$, $30 < x \leq 40$.
(b) Write down the modal class.
(c) What fraction of the values are in the modal class? Give your answer in its simplest form.

**(Total for Question 14 is 4 marks)**


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**15** A tally chart shows the sports chosen at a club. In the tally, each ||||/ stands for a group of 5.

| Category | Tally |
|---|---|
| walk | ||||/ ||||/ ||| |
| bus | ||||/ ||||/ ||||/ ||| |
| car | ||||/ ||| |
| cycle | ||||/ ||||/ |||| |

(a) Write down the frequency for each category.
(b) Work out the total frequency.
(c) What fraction of the total is car? Give your answer in its simplest form.

**(Total for Question 15 is 4 marks)**

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**16** A data collection sheet is used to record the number of text messages sent by 45 pupils in one day. The tally totals recorded were: 0-9 messages: 11 pupils, 10-19 messages: 18 pupils, 20-29 messages: 9 pupils, and the rest sent 30 or more messages. Work out the number of pupils who sent 30 or more messages, and state whether the class intervals used are suitable for continuous or discrete data.

**(Total for Question 16 is 3 marks)**


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# Mark scheme · 1.12 Collecting Data: 1-hour Pack

## Question 1

| | |
|---|---|
| uses a row or column total minus a known value | **M1** |
| first missing value correct | **A1** |
| second missing value correct | **A1** |

**Answer: 31, 11**

## Question 2

| | |
|---|---|
| tally or count with consistent classes (a value on a boundary goes in the lower class) | **M1** |
| frequencies 9, 3, 4, 4 cao | **A1** |
| $0 < x \leq 10$ | **B1** |
| 9/20 cao | **B1** |

**Answer: (a) 9, 3, 4, 4; (b) $0 < x \leq 10$; (c) 9/20**

## Question 3

| | |
|---|---|
| uses a row or column total minus a known value | **M1** |
| first missing value correct | **A1** |
| second missing value correct | **A1** |

**Answer: 16, 8**

## Question 4

| | |
|---|---|
| tally or count with consistent classes (a value on a boundary goes in the lower class) | **M1** |
| frequencies 0, 6, 4, 4, 4, 2 cao | **A1** |
| $10 < x \leq 20$ | **B1** |
| 3/10 cao | **B1** |

**Answer: (a) 0, 6, 4, 4, 4, 2; (b) $10 < x \leq 20$; (c) 3/10**

## Question 5

| | |
|---|---|
| counts groups of 5 plus the extra strokes | **M1** |
| frequencies 16, 11, 14, 11 cao | **A1** |
| 52 cao | **B1** |
| 7/26 cao | **B1** |

**Answer: (a) 16, 11, 14, 11; (b) 52; (c) 7/26**

## Question 6

| | |
|---|---|
| uses a row or column total minus a known value | **M1** |
| first missing value correct | **A1** |
| second missing value correct | **A1** |

**Answer: 9, 10**

## Question 7

| | |
|---|---|
| tally or count with consistent classes (a value on a boundary goes in the lower class) | **M1** |
| frequencies 8, 2, 4, 6 cao | **A1** |
| $0 < x \leq 10$ | **B1** |
| 2/5 cao | **B1** |

**Answer: (a) 8, 2, 4, 6; (b) $0 < x \leq 10$; (c) 2/5**

## Question 8

| | |
|---|---|
| counts groups of 5 plus the extra strokes | **M1** |
| frequencies 15, 19, 18, 13 cao | **A1** |
| 65 cao | **B1** |
| 1/5 cao | **B1** |

**Answer: (a) 15, 19, 18, 13; (b) 65; (c) 1/5**

## Question 9

| | |
|---|---|
| uses a row or column total minus a known value | **M1** |
| first missing value correct | **A1** |
| second missing value correct | **A1** |

**Answer: 16, 17**

## Question 10

| | |
|---|---|
| counts groups of 5 plus the extra strokes | **M1** |
| frequencies 3, 11, 18, 8, 11 cao | **A1** |
| 51 cao | **B1** |
| 11/51 cao | **B1** |

**Answer: (a) 3, 11, 18, 8, 11; (b) 51; (c) 11/51**

## Question 11

| | |
|---|---|
| uses a row or column total minus a known value | **M1** |
| first missing value correct | **A1** |
| second missing value correct | **A1** |

**Answer: 8, 20**

## Question 12

| | |
|---|---|
| tally or count with consistent classes (a value on a boundary goes in the lower class) | **M1** |
| frequencies 2, 3, 11, 4 cao | **A1** |
| $20 < x \leq 30$ | **B1** |
| 11/20 cao | **B1** |

**Answer: (a) 2, 3, 11, 4; (b) $20 < x \leq 30$; (c) 11/20**

## Question 13

| | |
|---|---|
| uses a row or column total minus a known value | **M1** |
| first missing value correct | **A1** |
| second missing value correct | **A1** |

**Answer: 40, 19**

## Question 14

| | |
|---|---|
| tally or count with consistent classes (a value on a boundary goes in the lower class) | **M1** |
| frequencies 7, 4, 3, 6 cao | **A1** |
| $0 < x \leq 10$ | **B1** |
| 7/20 cao | **B1** |

**Answer: (a) 7, 4, 3, 6; (b) $0 < x \leq 10$; (c) 7/20**

## Question 15

| | |
|---|---|
| counts groups of 5 plus the extra strokes | **M1** |
| frequencies 13, 18, 8, 14 cao | **A1** |
| 53 cao | **B1** |
| 8/53 cao | **B1** |

**Answer: (a) 13, 18, 8, 14; (b) 53; (c) 8/53**


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## Question 16

| | |
|---|---|
| correct method, 45 minus (11+18+9) | **M1** |
| 7 cao | **A1** |
| Discrete cao, with valid reason, e.g. the number of messages can only take whole-number values oe | **B1** |

**Answer: 7 pupils sent 30 or more messages. The class intervals are for discrete data, since the number of text messages can only be a whole number.**


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