# 5.5 Two-Way Tables and Frequency Trees: 2-hour Pack

Calculators not allowed · about 120 minutes

Name: _____ Date: ____ / ____ / _____

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

**1** The two-way table shows how 73 people travel to work.
Adults: Bus = 30, Car = 28.
Children: Bus = 5, Car = 10.
One person is chosen at random. Work out the probability that the person is in Adults and in Bus.

**(1)**

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**2** The numbers of pets owned by 15 pupils are: 7, 5, 4, 6, 7, 7, 5, 4, 4, 6, 5, 8, 7, 7, 8.
Complete a frequency table to find how many pupils own 4 pets.

**(2)**

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**3** There are 80 pupils in Year 8. 1/5 of them are in the school choir. 3/4 of the choir members play an instrument. Work out how many pupils are in the choir and play an instrument.

**(3)**

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**4** 51 people were asked about their choice. The two-way table shows the results. Adults: Pizza 9, Pasta 14, Salad 13; Children: Pizza 4, Pasta 8, Salad 3.
How many people chose Pasta?

**(1)**


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**5** There are 120 pupils in Year 8. 2/5 of them are in the school choir. 1/6 of the choir members play an instrument. Work out how many pupils are in the choir and play an instrument.

**(3)**

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**6** The two-way table shows some information about Boys and Girls.
Boys: Football = 24, Netball = ?, total = 31.
Girls: Football = ?, Netball = ?, total = 58.
Total for Football = 53.
Work out the three missing values.

**(3)**

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**7** 78 people were asked about their choice. The two-way table shows the results. Year 7: bus 20, walk 16, car 12; Year 8: bus 8, walk 7, car 15.
One person is chosen at random. Work out the probability that the person is in the group Year 8 and chose car. Give your answer as a fraction in its simplest form.

**(2)**

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**8** 67 people were asked about their choice. The two-way table shows the results. Adults: Pizza 7, Pasta 19, Salad 3; Children: Pizza 13, Pasta 8, Salad 17.
How many Adults were asked?

**(1)**


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**9** There are 200 pupils in Year 8. 3/6 of them are in the school choir. 1/5 of the choir members play an instrument. Work out how many pupils are in the choir and play an instrument.

**(3)**

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**10** 78 people were asked about their choice. The two-way table shows the results. Boys: Art 11, Music 13, Drama 10; Girls: Art 17, Music 16, Drama 11.
How many Boys were asked?

**(1)**

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**11** The two-way table shows how 66 people travel to work.
Year 7: Tea = 14, Juice = 18.
Year 8: Tea = 20, Juice = 14.
One person is chosen at random. Work out the probability that the person is in Year 7 and in Tea.

**(2)**

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**12** There are 240 pupils in Year 8. 4/6 of them are in the school choir. 3/6 of the choir members play an instrument. Work out how many pupils are in the choir and play an instrument.

**(3)**


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**13** 92 people were asked about their choice. The two-way table shows the results. Year 7: bus 9, walk 20, car 15; Year 8: bus 17, walk 16, car 15.
How many people chose walk?

**(1)**

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**14** The two-way table shows some information about Boys and Girls.
Boys: Football = 27, Netball = ?, total = 48.
Girls: Football = ?, Netball = ?, total = 31.
Total for Football = 41.
Work out the three missing values.

**(3)**

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**15** 75 people were asked about their choice. The two-way table shows the results. Boys: Art 20, Music 6, Drama 20; Girls: Art 4, Music 14, Drama 11.
How many Boys were asked?

**(1)**

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**16** There are 120 pupils in Year 8. 2/8 of them are in the school choir. 1/6 of the choir members play an instrument. Work out how many pupils are in the choir and play an instrument.

**(3)**


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**17** 79 people were asked about their choice. The two-way table shows the results. Adults: Pizza 15, Pasta 16, Salad 12; Children: Pizza 10, Pasta 9, Salad 17.
One person is chosen at random. Work out the probability that the person is in the group Children and chose Salad. Give your answer as a fraction in its simplest form.

**(1)**

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**18** The numbers of pets owned by 21 pupils are: 5, 5, 2, 1, 2, 3, 2, 1, 4, 3, 2, 3, 2, 5, 4, 2, 2, 5, 2, 3, 5.
Complete a frequency table to find how many pupils own 3 pets.

**(2)**

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**19** The two-way table shows some information about Year 7 and Year 8.
Year 7: Tea = 21, Juice = ?, total = 44.
Year 8: Tea = ?, Juice = ?, total = 26.
Total for Tea = 39.
Work out the three missing values.

**(3)**

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**20** 92 people were asked about their choice. The two-way table shows the results. Adults: Pizza 14, Pasta 10, Salad 16; Children: Pizza 17, Pasta 19, Salad 16.
How many people chose Pasta?

**(1)**


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**21** The two-way table shows some information about Boys and Girls.
Boys: Football = 9, Netball = ?, total = 35.
Girls: Football = ?, Netball = ?, total = 52.
Total for Football = 34.
Work out the three missing values.

**(3)**

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**22** 63 people were asked about their choice. The two-way table shows the results. Adults: Pizza 13, Pasta 6, Salad 14; Children: Pizza 5, Pasta 7, Salad 18.
How many people chose Pasta?

**(1)**

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**23** The numbers of pets owned by 22 pupils are: 2, 4, 1, 5, 4, 4, 3, 3, 4, 2, 1, 2, 2, 5, 2, 4, 5, 2, 4, 4, 1, 3.
What fraction of the pupils own exactly 5 pets? Give your answer in its simplest form.

**(2)**

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**24** The numbers of pets owned by 17 pupils are: 8, 4, 5, 6, 5, 8, 7, 5, 8, 5, 8, 5, 6, 5, 8, 6, 5.
Complete a frequency table to find how many pupils own 8 pets.

**(2)**

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**25** The numbers of pets owned by 14 pupils are: 2, 3, 3, 2, 3, 5, 5, 2, 2, 5, 5, 6, 5, 3.
What fraction of the pupils own exactly 5 pets? Give your answer in its simplest form.

**(2)**


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**26** 54 people were asked about their choice. The two-way table shows the results. Boys: Art 6, Music 20, Drama 6; Girls: Art 6, Music 10, Drama 6.
How many Boys were asked?

**(1)**

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**27** The two-way table shows how 54 people travel to work.
Adults: Bus = 28, Car = 4.
Children: Bus = 4, Car = 18.
One person is chosen at random. Work out the probability that the person is in Adults and in Bus.

**(2)**

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**28** The two-way table shows some information about Year 7 and Year 8.
Year 7: Tea = 24, Juice = ?, total = 54.
Year 8: Tea = ?, Juice = ?, total = 38.
Total for Tea = 33.
Work out the three missing values.

**(3)**

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**29** 42 people were asked about their choice. The two-way table shows the results. Adults: Pizza 3, Pasta 3, Salad 5; Children: Pizza 10, Pasta 12, Salad 9.
How many people chose Pasta?

**(1)**


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**30** The two-way table shows how 50 people travel to work.
Year 7: Tea = 26, Juice = 9.
Year 8: Tea = 5, Juice = 10.
One person is chosen at random. Work out the probability that the person is in Year 7 and in Tea.

**(2)**

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**31** The numbers of pets owned by 19 pupils are: 7, 3, 3, 6, 7, 4, 4, 6, 3, 4, 6, 4, 5, 7, 6, 7, 5, 7, 7.
Complete a frequency table to find how many pupils own 5 pets.

**(2)**

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**32** 86 people were asked about their choice. The two-way table shows the results. Adults: Pizza 16, Pasta 10, Salad 15; Children: Pizza 17, Pasta 13, Salad 15.
How many people chose Pasta?

**(1)**

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**33** There are 240 pupils in Year 8. 2/5 of them are in the school choir. 3/6 of the choir members play an instrument. Work out how many pupils are in the choir and play an instrument.

**(3)**


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**34** The numbers of pets owned by 16 pupils are: 7, 7, 4, 7, 3, 6, 4, 7, 4, 3, 5, 5, 3, 3, 3, 4.
What fraction of the pupils own exactly 5 pets? Give your answer in its simplest form.

**(3)**

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**35** The two-way table shows some information about Year 7 and Year 8.
Year 7: Tea = 20, Juice = ?, total = 29.
Year 8: Tea = ?, Juice = ?, total = 35.
Total for Tea = 44.
Work out the three missing values.

**(3)**

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**36** There are 200 pupils in Year 8. 1/5 of them are in the school choir. 3/4 of the choir members play an instrument. Work out how many pupils are in the choir and play an instrument.

**(3)**


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**37** A two-way table records 300 patients at a clinic by age group and whether they received a flu vaccine this year. 180 patients are over 50, and 120 are 50 or under. Of the over-50 group, 144 received the vaccine. Of the 50-or-under group, 54 received the vaccine.

**(a)** Find the total number of patients who received the vaccine. **(2)**

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**(b)** Find the probability that a randomly selected patient did NOT receive the vaccine, giving your answer as a fraction in simplest form. **(2)**

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**38** 80 students are asked whether they walk to school. 45 walk and 35 do not. Of the 45 who walk, 27 live within 1 mile of school. Find the probability that a randomly chosen student walks to school AND lives within 1 mile, giving your answer as a fraction in simplest form.

**(2)**


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# Mark scheme · 5.5 Two-Way Tables and Frequency Trees: 2-hour Pack

## Question 1

30/73 cao — B1

Answer: **30/73**

## Question 2

systematic counting or a tally of the data — M1

3 cao — A1

Answer: **3**

## Question 3

1/5 x 80 = 16 — M1

3/4 x 16 — M1

12 cao — A1

Answer: **12**

## Question 4

22 cao — B1

Answer: **22**

## Question 5

2/5 x 120 = 48 — M1

1/6 x 48 — M1

8 cao — A1

Answer: **8**

## Question 6

31 - 24 — M1

53 - 24 or 58 - (53 - 24) — M1

7, 29, 29 cao — A1

Answer: **Boys Netball = 7, Girls Football = 29, Girls Netball = 29**

## Question 7

15/78 — M1

5/26 cao — A1

Answer: **5/26**

## Question 8

29 cao — B1

Answer: **29**

## Question 9

3/6 x 200 = 100 — M1

1/5 x 100 — M1

20 cao — A1

Answer: **20**

## Question 10

34 cao — B1

Answer: **34**

## Question 11

14/66 — M1

7/33 cao — A1

Answer: **7/33**

## Question 12

4/6 x 240 = 160 — M1

3/6 x 160 — M1

80 cao — A1

Answer: **80**

## Question 13

36 cao — B1

Answer: **36**

## Question 14

48 - 27 — M1

41 - 27 or 31 - (41 - 27) — M1

21, 14, 17 cao — A1

Answer: **Boys Netball = 21, Girls Football = 14, Girls Netball = 17**

## Question 15

46 cao — B1

Answer: **46**

## Question 16

2/8 x 120 = 30 — M1

1/6 x 30 — M1

5 cao — A1

Answer: **5**

## Question 17

17/79 cao — B1

Answer: **17/79**

## Question 18

systematic counting or a tally of the data — M1

4 cao — A1

Answer: **4**

## Question 19

44 - 21 — M1

39 - 21 or 26 - (39 - 21) — M1

23, 18, 8 cao — A1

Answer: **Year 7 Juice = 23, Year 8 Tea = 18, Year 8 Juice = 8**

## Question 20

29 cao — B1

Answer: **29**

## Question 21

35 - 9 — M1

34 - 9 or 52 - (34 - 9) — M1

26, 25, 27 cao — A1

Answer: **Boys Netball = 26, Girls Football = 25, Girls Netball = 27**

## Question 22

13 cao — B1

Answer: **13**


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## Question 23

| | |
|---|---|
| frequency 3 found | M1 |
| 3/22 cao | A1 |

Answer: **3/22**

## Question 24

| | |
|---|---|
| systematic counting or a tally of the data | M1 |
| 5 cao | A1 |

Answer: **5**

## Question 25

| | |
|---|---|
| frequency 5 found | M1 |
| 5/14 cao | A1 |

Answer: **5/14**

## Question 26

| | |
|---|---|
| 32 cao | B1 |

Answer: **32**

## Question 27

| | |
|---|---|
| 28/54 | M1 |
| 14/27 cao | A1 |

Answer: **14/27**

## Question 28

| | |
|---|---|
| 54 - 24 | M1 |
| 33 - 24 or 38 - (33 - 24) | M1 |
| 30, 9, 29 cao | A1 |

Answer: **Year 7 Juice = 30, Year 8 Tea = 9, Year 8 Juice = 29**

## Question 29

| | |
|---|---|
| 15 cao | B1 |

Answer: **15**

## Question 30

| | |
|---|---|
| 26/50 | M1 |
| 13/25 cao | A1 |

Answer: **13/25**

## Question 31

| | |
|---|---|
| systematic counting or a tally of the data | M1 |
| 2 cao | A1 |

Answer: **2**

## Question 32

| | |
|---|---|
| 23 cao | B1 |

Answer: **23**

## Question 33

| | |
|---|---|
| 2/5 x 240 = 96 | M1 |
| 3/6 x 96 | M1 |
| 48 cao | A1 |

Answer: **48**

## Question 34

| | |
|---|---|
| frequency 2 found | M1 |
| 2/16 | M1 |
| 1/8 cao | A1 |

Answer: **1/8**

## Question 35

| | |
|---|---|
| 29 - 20 | M1 |
| 44 - 20 or 35 - (44 - 20) | M1 |
| 9, 24, 11 cao | A1 |

Answer: **Year 7 Juice = 9, Year 8 Tea = 24, Year 8 Juice = 11**

## Question 36

| | |
|---|---|
| 1/5 x 200 = 40 | M1 |
| 3/4 x 40 | M1 |
| 30 cao | A1 |

Answer: **30**

## Question 37

| | |
|---|---|
| (a) 144 + 54 shown | M1 |
| (a) 198 cao | A1 |

(a) Answer: **198**

| | |
|---|---|
| (b) not vaccinated = 300 - 198 = 102, probability 102/300 | M1 |
| (b) 17/50 cao | A1 |

(b) Answer: **17/50**

## Question 38

| | |
|---|---|
| 27/80 shown | M1 |
| 27/80 cao (already simplest form) | A1 |

Answer: **27/80**


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