



## 2.17D Pie Charts: Fluency and Exam Drill

EDEXCEL Edexcel 1MA1 · Calculator allowed · about 50 minutes

Total Marks

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Name: \_\_\_\_\_ Date: \_\_\_\_ / \_\_\_\_ / \_\_\_\_

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

- 1** A survey asked 20 pupils which after-school club they attend. 9 pupils said 'Drama'. Work out the angle for the Drama sector in a pie chart. Give your answer in degrees.

(Total for Question 1 is 1 mark)

- 2** A pie chart shows modes of travel for 40 commuters. 12 travel by bus. What angle should the bus sector have in the pie chart? Give your answer in degrees.

(Total for Question 2 is 1 mark)

- 3** In a pie chart, a sector for 'Sports' has angle 90 degrees. What fraction of the whole does this represent? Give your answer as a fraction in simplest form.

(Total for Question 3 is 1 mark)

- 4** A pie chart shows results of 50 students' favourite fruit. The sector for apples has angle 144 degrees. Work out how many students chose apples.

(Total for Question 4 is 2 marks)

- 5** A class of 30 pupils completed a survey about pets. A pie chart shows: Dogs 132 degrees, Cats 96 degrees, Other pets sector missing.  
Work out how many pupils chose Other pets.

(Total for Question 5 is 3 marks)

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- 6** A survey of 80 shoppers recorded preferred shop types. The pie chart shows Supermarket 198 degrees and Market stalls 90 degrees. Work out the ratio of shoppers who prefer Supermarket to Market stalls. Give your answer in simplest integer form.

(Total for Question 6 is 3 marks)

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- 7** A council published a pie chart for energy use in a town. Domestic 150 degrees, Industry 90 degrees, Transport sector 60 degrees, Other sectors make up the rest. The town has 24 000 households; the Domestic sector represents households using a specific energy-saving scheme. Work out how many households use the scheme.

(Total for Question 7 is 4 marks)

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- 8** The pie chart below shows the results of 90 people answering a neighbourhood question. The sector for 'Yes' measures 140 degrees. Show that the number of people who answered 'Yes' is 35. Give the full method.

(Total for Question 8 is 3 marks)

- 9** Two pie charts show evening activities for two schools. School A: Reading 126 degrees. School B: Reading 108 degrees. Both surveys had 120 pupils. Work out how many more pupils in School A read in the evening than in School B.

(Total for Question 9 is 4 marks)

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- 10** Stretch question. A pie chart gives the distribution of 150 responses to a transport survey. Sectors are given in degrees as: Bus 108 degrees, Walk 72 degrees, Bike  $x$  degrees, Train 96 degrees. The remaining responses are Bike. Work out the number of respondents who chose Bike. Show your working and give the answer.

(Total for Question 10 is 6 marks)

## Mark scheme · 2.17D Pie Charts: Fluency and Exam Drill

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### Question 1

- **B1** 162 degrees cao
- **Answer: 162 degrees (because  $9/20$  of  $360 = 162$  degrees).**

### Question 2

- **B1** 108 degrees cao
- **Answer: 108 degrees (because  $12/40$  of  $360 = 108$  degrees).**

### Question 3

- **B1**  $1/4$  cao
- **Answer:  $1/4$  ( $90/360 = 1/4$ ).**

### Question 4

- **M1** use  $144/360 \times 50$  or equivalent method
- **A1** 20 cao
- **Answer: 20 (because  $144/360 \times 50 = 0.4 \times 50 = 20$ ).**

### Question 5

- **M1** find missing angle:  $360 - (132 + 96) = 132$  degrees
- **M1** convert angle to frequency:  $132/360 \times 30$  oe
- **A1** 11 cao
- **Answer: 11 (missing angle =  $360 - 228 = 132$  degrees;  $132/360 \times 30 = 11$ ).**

### Question 6

- **M1** convert angles to numbers:  $198/360 \times 80$  and  $90/360 \times 80$
- **M1** calculate numbers: 44 and 20 oe
- **A1** 11:5 cao
- **Answer: 11:5 (Supermarket  $198/360 \times 80 = 44$ ; Market stalls  $90/360 \times 80 = 20$ ; ratio  $44:20 = 11:5$ ).**

### Question 7

- **M1** find proportion for Domestic:  $150/360$
- **M1** multiply by 24000 or equivalent:  $150/360 \times 24000$
- **A1** 10000 cao
- **B1** final statement in context: 10000 households use the scheme
- **Answer: 10000 households ( $150/360 \times 24000 = 10000$ ).**

### Question 8

- **M1** use method:  $140/360 \times 90$  or equivalent
- **M1** calculate  $140/360 \times 90 = 35$  oe
- **A1** 35 cao
- **Answer: 35 (because  $140/360 \times 90 = 35$ ).**

### Question 9

- **M1** convert angles to counts:  $126/360 \times 120$  and  $108/360 \times 120$
- **M1** calculate numbers: 42 and 36 oe
- **M1** find difference:  $42 - 36$
- **A1** 6 cao
- **Answer: 6 more pupils (School A:  $126/360 \times 120 = 42$ ; School B:  $108/360 \times 120 = 36$ ; difference 6).**

### Question 10

- **M1** find total of known angles:  $108 + 72 + 96 = 276$  degrees
- **M1** find Bike angle:  $360 - 276 = 84$  degrees
- **M1** state proportion for Bike:  $84/360$
- **M1** multiply by 150:  $84/360 \times 150$
- **A1** 35 cao
- **C1** final statement in context: 35 respondents chose Bike
- **Answer: 35 (Bike angle =  $360 - 276 = 84$  degrees;  $84/360 \times 150 = 35$  respondents).**