



# ACHIEVE ACADEMY

## GCSE Maths — Higher Tier

Data Representation: Bar Charts & Pie Charts · Practice Booklet

NAME: \_\_\_\_\_

CLASS: \_\_\_\_\_

DATE: \_\_\_\_\_

☐ Developing

☒ Secure

☐ Greater Depth

Answer every question in the working space provided. Method marks are available for correct working even if the final answer is wrong. Check the time allowed with your tutor before you start.

### Data Representation: Bar Charts & Pie Charts

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Total marks available: 91

## ● Data Representation: Bar Charts & Pie Charts

✓ Angles: Bus  $85^\circ$ , Car  $60^\circ$ , Walk  $40^\circ$ ,  
Cycle  $175^\circ$

Q1 · ● Developing · 4 marks

### METHOD

$360^\circ \div 72 = 5^\circ$  for each employee

Bus:  $17 \times 5 = 85^\circ$

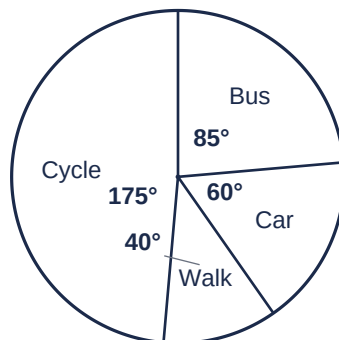
Car:  $12 \times 5 = 60^\circ$

Walk:  $8 \times 5 = 40^\circ$

Cycle:  $35 \times 5 = 175^\circ$

Check:  $85 + 60 + 40 + 175 = 360^\circ$

| Transport | Frequency | Angle       |
|-----------|-----------|-------------|
| Bus       | 17        | $85^\circ$  |
| Car       | 12        | $60^\circ$  |
| Walk      | 8         | $40^\circ$  |
| Cycle     | 35        | $175^\circ$ |



✓ Angles: Football  $52^\circ$ , Rugby  $56^\circ$ , Netball  $120^\circ$ , Hockey  $132^\circ$

Q2 · ● Developing · 4 marks

METHOD

$360^\circ \div 90 = 4^\circ$  for each student

Football:  $13 \times 4 = 52^\circ$

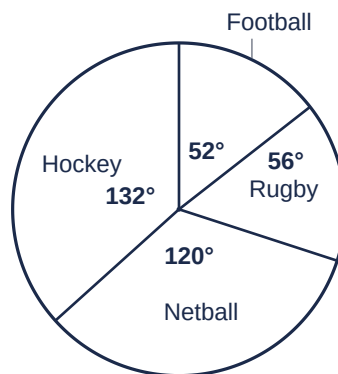
Rugby:  $14 \times 4 = 56^\circ$

Netball:  $30 \times 4 = 120^\circ$

Hockey:  $33 \times 4 = 132^\circ$

Check:  $52 + 56 + 120 + 132 = 360^\circ$

| Sport    | Frequency | Angle       |
|----------|-----------|-------------|
| Football | 13        | $52^\circ$  |
| Rugby    | 14        | $56^\circ$  |
| Netball  | 30        | $120^\circ$ |
| Hockey   | 33        | $132^\circ$ |



✓158

Q3 · ● Developing · 2 marks

METHOD

Total =  $23 + 28 + 58 + 38 + 11 = 158$

✓145

Q4 · ● Developing · 2 marks

METHOD

Total =  $26 + 20 + 23 + 20 + 56 = 145$

✓152

Q5 · ● Developing · 2 marks

## METHOD

$$\text{Total} = 13 + 24 + 12 + 56 + 47 = 152$$

✓ Angles: Comedy  $135^\circ$ , Drama  $140^\circ$ ,  
Action  $55^\circ$ , Documentary  $30^\circ$

Q6 · ● Developing · 4 marks

## METHOD

$$360^\circ \div 72 = 5^\circ \text{ for each viewer}$$

$$\text{Comedy: } 27 \times 5 = 135^\circ$$

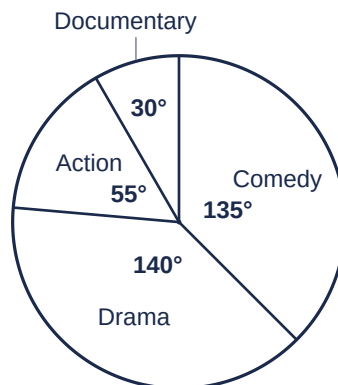
$$\text{Drama: } 28 \times 5 = 140^\circ$$

$$\text{Action: } 11 \times 5 = 55^\circ$$

$$\text{Documentary: } 6 \times 5 = 30^\circ$$

$$\text{Check: } 135 + 140 + 55 + 30 = 360^\circ$$

| Type of film | Frequency | Angle       |
|--------------|-----------|-------------|
| Comedy       | 27        | $135^\circ$ |
| Drama        | 28        | $140^\circ$ |
| Action       | 11        | $55^\circ$  |
| Documentary  | 6         | $30^\circ$  |



✓140

Q7 · ● Developing · 2 marks

## METHOD

$$\text{Total} = 14 + 14 + 29 + 42 + 41 = 140$$

✓63°

Q8 · ● Developing · 2 marks

METHOD

$360^\circ \div 40 = 9^\circ$  for each viewer

Comedy:  $7 \times 9^\circ = 63^\circ$

✓120°

Q9 · ● Developing · 2 marks

METHOD

$360^\circ \div 45 = 8^\circ$  for each household

Cats:  $15 \times 8^\circ = 120^\circ$

✓72°

Q10 · ● Developing · 2 marks

METHOD

$360^\circ \div 90 = 4^\circ$  for each household

Dogs:  $18 \times 4^\circ = 72^\circ$

✓40.7%

Q11 · ● Secure · 3 marks

METHOD

$(57 \div 140) \times 100 = 40.7\%$

✓45

Q12 · ● Secure · 3 marks

METHOD

$128^\circ$  represents 16

Total =  $16 \div 128 \times 360 = 45$

✓72

Q13 · ● Secure · 3 marks

METHOD

$55^\circ$  represents 11

Total =  $11 \div 55 \times 360 = 72$

✓26.8%

Q14 · ● Secure · 3 marks

METHOD

$(51 \div 190) \times 100 = 26.8\%$

✓180

Q15 · ● Secure · 3 marks

METHOD

$36^\circ$  represents 18

Total =  $18 \div 36 \times 360 = 180$

✓26.3%

Q16 · ● Secure · 3 marks

METHOD

$(45 \div 171) \times 100 = 26.3\%$

✓20.4%

Q17 · ● Secure · 3 marks

METHOD

$(39 \div 191) \times 100 = 20.4\%$

✓72

Q18 · ● Secure · 3 marks

METHOD

$50^\circ$  represents 10

Total =  $10 \div 50 \times 360 = 72$

✓60

Q19 · ● Secure · 3 marks

METHOD

$42^\circ$  represents 7

Total =  $7 \div 42 \times 360 = 60$

✓19.5%

Q20 · ● Secure · 3 marks

METHOD

$(39 \div 200) \times 100 = 19.5\%$

✓41

Q21 · ● Greater Depth · 3 marks

METHOD

Total shown =  $20 + 42 + 38 + 13 = 113$

Purple =  $154 - 113 = 41$

✓(a)  $x = 40$ ; (b) 6

Q22 · ● Greater Depth · 4 marks

METHOD

(a)  $7x + 80 = 360$

$7x = 280$

$x = 40$

(b) Bus:  $x + 20 = 60^\circ$

$60/360 \times 36 = 6$

✓(a)  $x = 40$ ; (b) 90

Q23 · ● Greater Depth · 4 marks

METHOD

(a)  $9x = 360$

$9x = 360$

$x = 40$

(b) Comedy:  $2x + 10 = 90^\circ$

$90/360 \times 360 = 90$

✓(a)  $x = 40$ ; (b) 160

Q24 · ● Greater Depth · 4 marks

METHOD

(a)  $9x = 360$

$9x = 360$

$x = 40$

(b) Fish:  $4x = 160^\circ$

$160/360 \times 360 = 160$

✓(a)  $x = 50$ ; (b) 10

Q25 · ● Greater Depth · 4 marks

METHOD

(a)  $8x - 40 = 360$

$8x = 400$

$x = 50$

(b) Comedy:  $2x = 100^\circ$

$100/360 \times 36 = 10$

✓50

Q26 · ● Greater Depth · 3 marks

METHOD

Total shown =  $11 + 41 + 39 + 32 = 123$

Cricket =  $173 - 123 = 50$

✓50

Q27 · ● Greater Depth · 3 marks

METHOD

Total shown =  $14 + 15 + 28 + 33 = 90$

Cricket =  $140 - 90 = 50$

✓(a)  $x = 50$ ; (b) 100

Q28 · ● Greater Depth · 4 marks

METHOD

$$(a) 8x - 40 = 360$$

$$8x = 400$$

$$x = 50$$

$$(b) \text{ Netball: } 2x = 100^\circ$$

$$100/360 \times 360 = 100$$

✓44

Q29 · ● Greater Depth · 3 marks

METHOD

$$\text{Total shown} = 45 + 43 + 10 + 19 = 117$$

$$\text{Purple} = 161 - 117 = 44$$

✓36

Q30 · ● Greater Depth · 3 marks

METHOD

$$\text{Total shown} = 26 + 46 + 31 + 36 = 139$$

$$\text{Purple} = 175 - 139 = 36$$