

**Kingswood School**  
**Entrance Examination for**  
**Entry to Year 7**

**SAMPLE**

**Mathematics**

**Non-Calculator paper**

**NOTE:**

**Time for this sample paper – 30 minutes**

**Actual paper set will be for 60 minutes**

**Instructions:**

**Please write all your answers to questions 1 – 7  
on the exam paper including any “working out”  
calculations.**

**Write your full name here:.....**

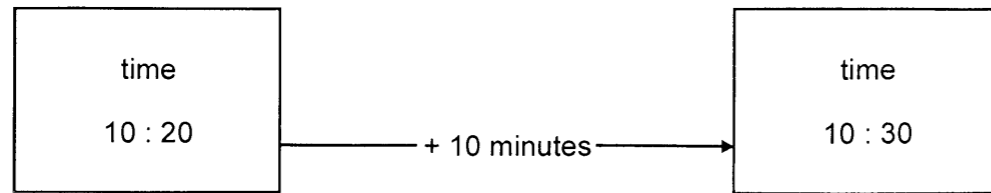
**Write the name of your present school here:.....**

**Write your Date of Birth here:.....**

**Please turn over.**

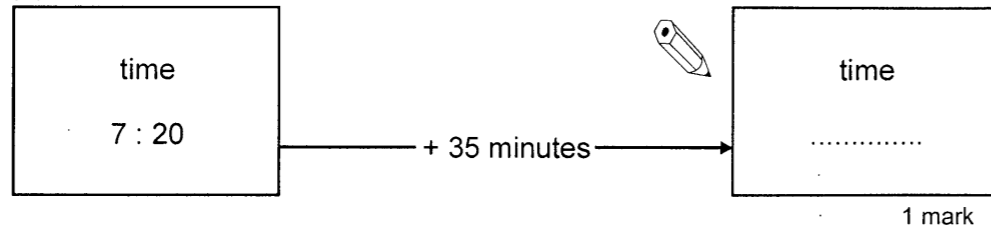
### 1) Time

Look at this time interval.

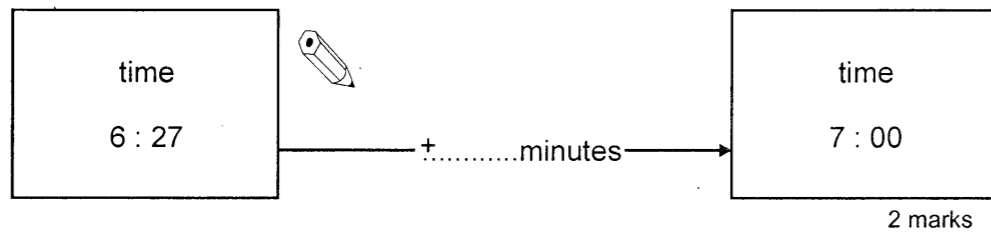


Fill in the missing times.

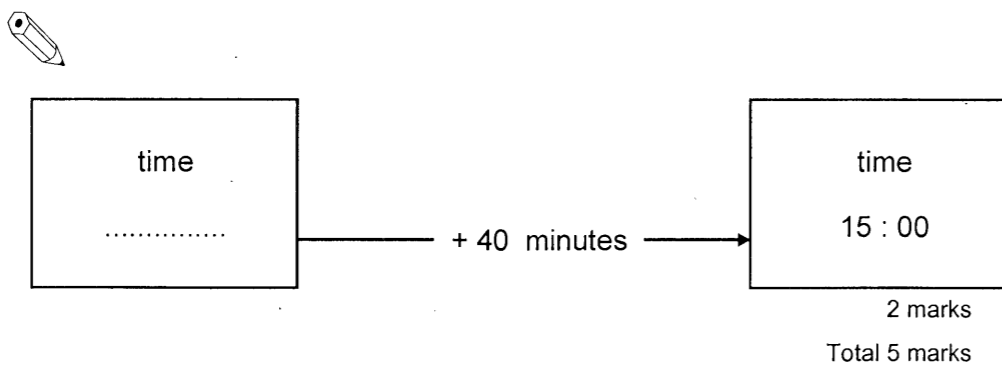
(a)



(b)



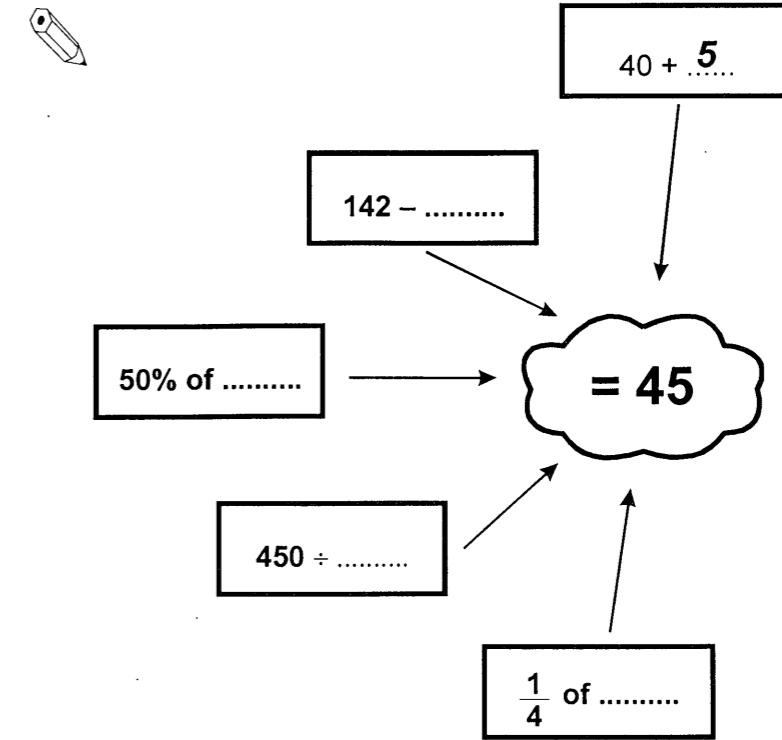
(c)



### 2) Forty-five

(a) Fill in the missing numbers so that the answer is **always 45**.

The first one is done for you.



8 marks

(b) Fill in the gaps below to make the answer 45.

You may use any of these signs: + - × ÷



28 ..... 2 ..... 31 = 45

1 mark

Total 9 marks

### 3) Tiles

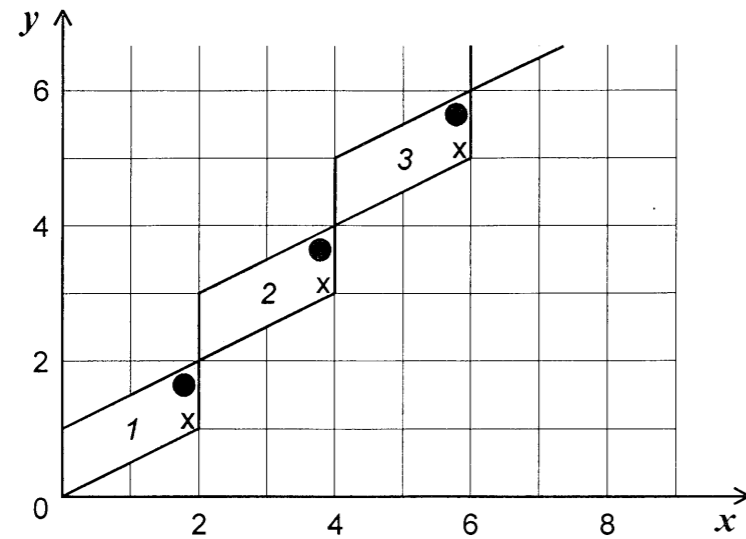
Daniel has some parallelogram tiles.



He puts them on a grid, in a continuing pattern.

He numbers each tile.

The diagram shows part of the pattern of tiles on the grid.



Daniel marks the **top right corner** of each tile with a ●

The co-ordinates of the corner with a ● on **tile number 3** are (6, 6)

(a) What are the co-ordinates of the corner with a ● on **tile number 4**?



(....., .....)

1 mark

(b) What are the co-ordinates of the corner with a ● on **tile number 20**?



(....., .....)

1 mark

Explain how you worked out your answer.



2 marks

(c) Daniel says:



One tile in the pattern has a ● in the corner at (25, 25)

Explain why Daniel is **wrong**.



1 mark

(d) Daniel marks the **bottom right corner** of each tile with a **X**

Fill in the table to show the co-ordinates of each corner with a **X**



tile number	co-ordinates of the corner with a X
1	(...2..., ...1...)
2	(....., .....)
3	(....., .....)
4	(....., .....)

3 mark

Fill in the missing numbers below.



(e) Tile number 7 has a **X** in the corner at (....., .....)

1 marks



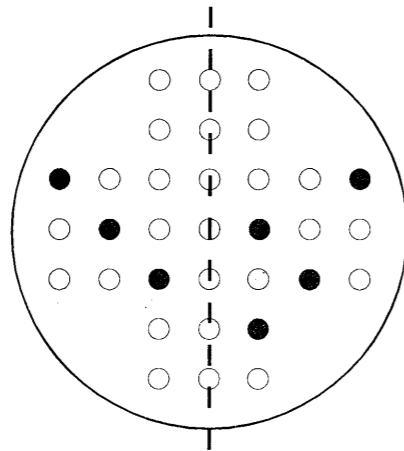
- (f) Tile number ..... has a **X** in the corner at (20, 19)  
1 marks  
Total 10 marks

#### 4) Symmetry

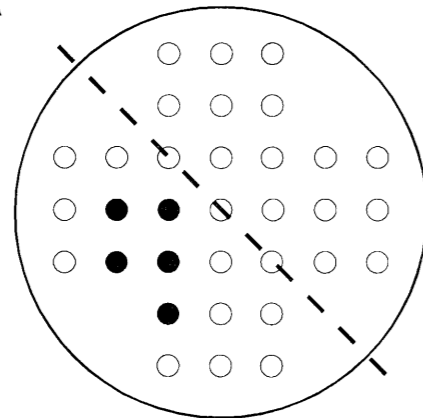
Some board games have pegs in holes.

- (a) On each board below, shade **5 more** pegs so that the dashed line is a **line of symmetry**.

You may use tracing paper to help.

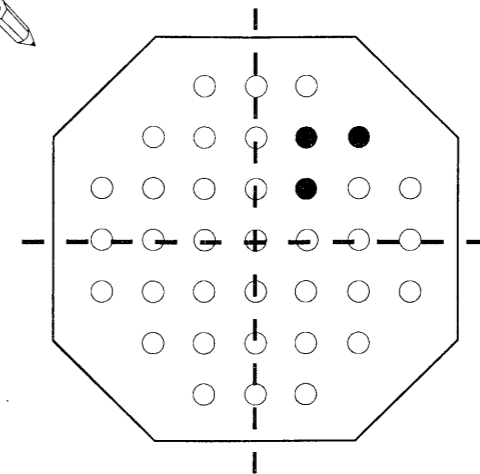


2 marks



2 marks

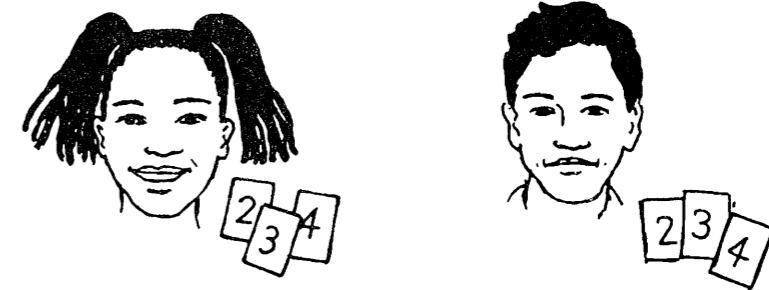
- (b) Shade **9 more** pegs so that **both** dashed lines are **lines of symmetry**.



2 marks  
Total 6 marks

#### 5) Outcomes

Karen and Huw each have three cards, numbered 2, 3 and 4.



They each take any **one** of their own cards.  
They then **add** together the numbers on the two cards.

The table shows all the possible answers.

		Karen		
		2	3	4
Huw	2	4	5	6
	3	5	6	7
	4	6	7	8

(a) What is the **probability** that their answer is an **even** number?



1 mark

(b) What is the **probability** that their answer is a number **greater than 6**?



1 mark

(c) Both Karen and Huw still have their three cards, numbered 2, 3 and 4.

They each take any one of their own cards. They then **multiply** together the numbers on the two cards.

Draw a table to show all possible answers.



2 marks

Use your table to fill in the gaps below:



The probability that their answer is a number that is less than ..... is  $\frac{8}{9}$ .

1 marks



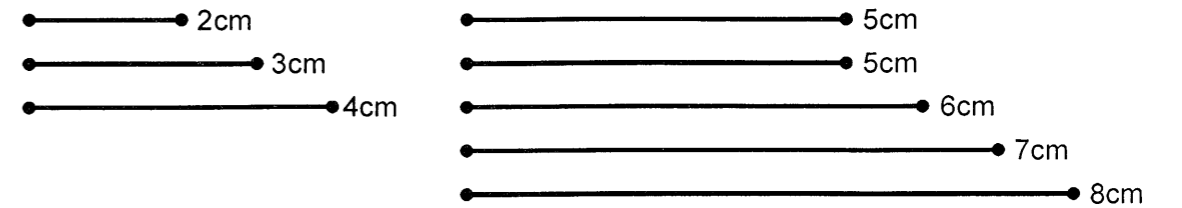
The probability that their answer is a number that is less than ..... is **zero**.

2 marks

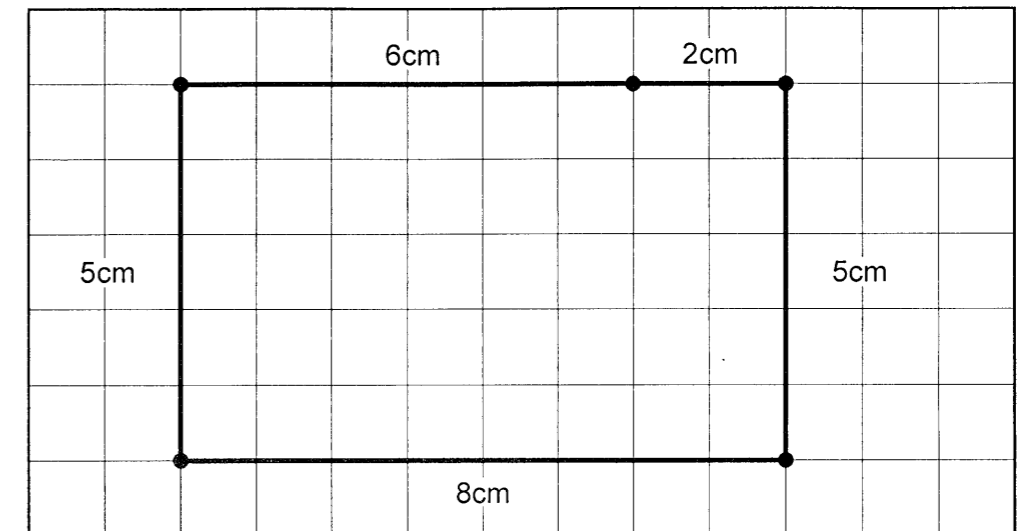
Total 7 marks

## 6) Rods

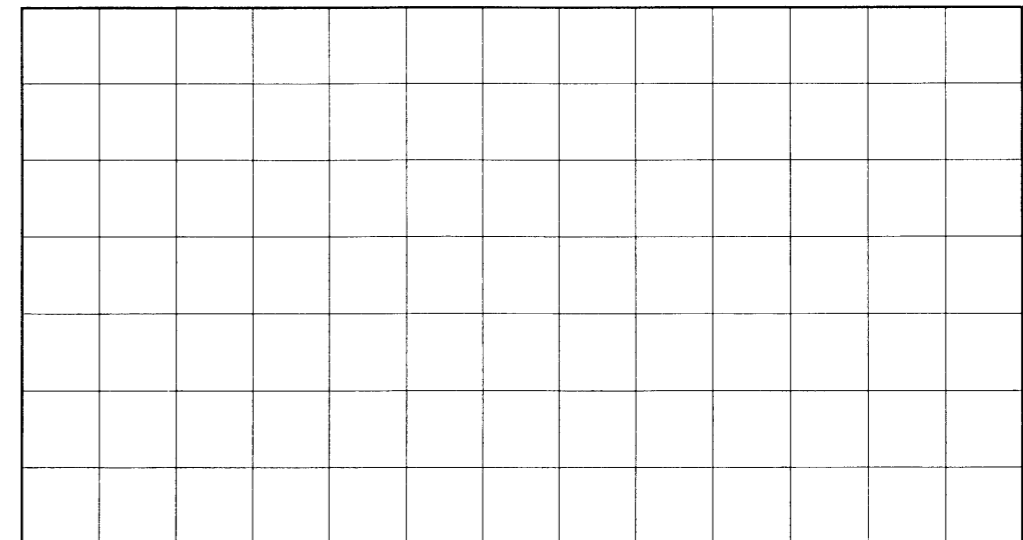
Helen has these eight rods.



She can use **5** of her rods to make a **rectangle**.



(a) Show how to make a **different rectangle** with a **different shape** with **5** of Helen's rods.



2 marks

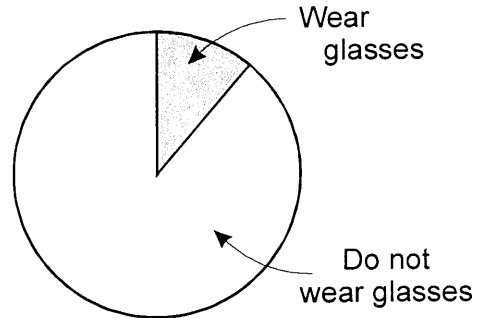


## 7) Glasses

There are **60 pupils** in a school.

**6** of these pupils wear glasses.

(a) The pie chart is not drawn accurately.



What should the angles be?

Show your working.



..... ° and ..... °

3 marks

(b) Exactly **half** of the 60 pupils in the school are boys.

From this information, what **percentage of boys** in this school **wear glasses**?

Tick (✓) the correct box below.



5%

6%

10%

20%

50%

not possible to tell

2 marks

Total 5 marks

**Test Total 50 Marks**

## Solutions for the Non Calculator Sample Paper

- 1) **Time**
- |     |       |   |
|-----|-------|---|
| (a) | 7:55  | 1 |
| (b) | 33    | 2 |
| (c) | 14:20 | 2 |
- [5]
- 2) **Forty Five**
- |     |   |   |
|-----|---|---|
| (a) | Indicates, for the correct computation, |   |
|     | 97                                      | 2 |
|     | 90                                      | 2 |
|     | 10                                      | 2 |
|     | 180                                     | 2 |
- Do not accept 90%.*
- |     |  |   |
|-----|--|---|
| (b) | Indicates, in the correct order, $\div$ then + | 1 |
|     | <i>Ignore partial working shown.</i>           |   |
- [9]
- 3) **Tiles**
- |     |                  |   |
|-----|------------------|---|
| (a) | Indicates 8, 8   | 1 |
| (b) | Indicates 40, 40 | 1 |
- Explains that the tile number is multiplied by 2 to find the co-ordinates, eg
- 'It's  $\times 2$ '
  - 'Double.'
  - ' $20 + 20 = 40$ '
  - 'Add the number to itself.'
  - ' $2 \times 20$ '
  - 'Tile 5 is (10, 10). Times it by 4 and you get (40, 40).'
  - ' $4 \times 5 = 20$ , and  $8 \times 5 = 40$ '
- or* Describes the number pattern, eg:
- 'They go up 2, 4, 6, 8...'
  - 'Count up in twos.'
  - 'It's the two times table.'
  - 'They are the even numbers.'
- Throughout the question, irrelevant statements should be ignored if accompanied by an acceptable response, but should not be accepted on their own*
- eg in part (c) 'The tile is a parallelogram.'*
- Accept explanations which refer to dividing by 2 provided the correct co-ordinates have been given in part (b), or it is clear that it is not the tile number which is being halved*
- eg 'You halve the number', with '40, 40' given as co-ordinates.*

'The tile number is half of the grid number.'

**Do not accept** responses which relate only to the tiles shown in the diagram or in part (a)

eg 'Tile 1 is (2, 2), and tile 2 is (4, 4), and so on.'

- (c) Indicates that the co-ordinates must be an even number, eg: 1
- 'The numbers go in twos.'
  - 'It goes 2, 4, 6, 8...'
  - 'The numbers must be even.'
  - '25 is odd.'
  - 'There are no dots on the odd co-ordinates.'
  - 'You can't divide 25 by 2'
  - 'You can't get 25 if you are multiplying by 2'
  - 'That's twelve and a half tiles.'
  - 'You can't have a fraction of a tile.'
  - 'Because the • is not in the middle.'
  - 'A tile goes right across (25, 25).'
  - 'The dot would be on (26, 26).'
  - 'You would need tiles that are 1cm, not 2cm.'
  - 'The tile goes across two squares like this:'



**Do not accept** responses which indicate that fractions other than a half, a quarter, or three eighths of a tile would be needed.

**Do not accept** false statements

eg 'The dot would have to be on (50, 50).'

**Throughout the question**, the use of the word evenly should be ignored if accompanied by an acceptable response, but should not be accepted on its own

eg accept 'The numbers must go up evenly in twos.'

but **do not accept** 'The numbers must go up evenly.'

- (d) Indicates 4, 3 3  
6, 5  
8, 7

- (e) Indicates 14, 13 1

- (f) Indicates 10 1

If the correct co-ordinates are reversed in both of parts (d) and (e), then award 0m for part (d) but 1m for part (e).

[10]

4) **Symmetry**

No mark scheme available, but correct tracing attached to the solutions

5) **Outcomes**

- (a) Indicates  $\frac{5}{9}$  1

Accept a correct probability written as an equivalent fraction, a decimal between 0.55 and 0.56 inclusive or a percentage between 55% and 56% inclusive.

Accept a correct probability accompanied by that probability written as words eg ' $\frac{5}{9}$  that's 5 in 9'

Otherwise **do not accept** a probability written as words or as a ratio.

- (b) Indicates  $\frac{1}{3}$  1

Accept a correct probability written as an equivalent fraction, a decimal between 0.33 and 0.335 inclusive, or a percentage between 33% and 33.5% inclusive.

Accept a correct probability accompanied by that probability written as words eg '1 out of 3 = 1 in 3 = 33%'

If answers to both parts (a) and (b) use the correct digits but are expressed as words, this mark may be awarded

eg '5 in 9' given in part (a) and '1 out of 3' given in part (b) is awarded 0 marks in part (a) and 1 mark in part (b).

If answers to both parts (a) and (b) are expressed as correct percentages but the percentage signs are omitted, then award only the mark for part (b).

**Do not accept** a probability written as a ratio

- (c) Shows all nine possible outcomes, eg: 2

×	2	3	4
2	4	6	8
3	6	9	12
4	8	12	16

Outcomes need not be in a table or be ordered in size.

Completes the sentence correctly, eg: 2

- Indicates a number greater than 12 but less than or equal to 16.

**Allow follow through** from incorrect outcomes.

Completes the sentence correctly, eg: 2

- Indicates a number that is 4 or less.

**Allow follow through** from incorrect outcomes.

[8]

6) **Rods**

- (a) Draws or otherwise indicates a different rectangle using one of the following sets of rods: 2

- 5, 5; 7, 4 + 3
- 5, 5; 6, 4 + 2

**Throughout the question** drawings need not be accurate provided the pupils' selection of rods is clear. However, if no

labels are given then ends of rods must be indicated in the drawing.

**Throughout the question** accept a corner of the rectangle as indicating the end of two rods.

**Throughout the question** if a drawing is given and labelled, accept correct labels on an incorrect drawing, but **do not accept** incorrect labels on a correct drawing.

**Do not accept** a rectangle with the rods

5, 5; 8, 6 + 2

as this is given in the question.

- (b) Draws or otherwise indicates a rectangle made with six of the rods. 3

*Acceptable combinations of rods include:*

5, 5; 8 + 3, 7 + 4 (5 by 11)

5, 5; 8 + 2, 7 + 3 (5 by 10)

5, 5; 8 + 2, 6 + 4 (5 by 10)

5, 5; 7 + 3, 6 + 4 (5 by 10)

5, 5; 7 + 2, 6 + 3 (5 by 9)

8, 6 + 2; 7, 4 + 3 (8 by 7)

8, 5 + 3; 7, 5 + 2 (8 by 7)

8, 5 + 3; 6, 4 + 2 (8 by 6)

*If the correct answers to parts (a) and (b) are interchanged, then award the mark for part (b) only.*

- (c) Draws or otherwise indicates a 10 by 10 square with edges made up with the following rods: 3

- 5 + 5; 6 + 4; 7 + 3; 8 + 2

[8]

## 7) Glasses

- (a) Both values correct, ie **36** and **324**, in either order.

*or*

3

One correct value

1

*or*

Both values sum to 360, but none are 0, 90 or 180

1

- (b) Indicates 'not possible to tell', ie 2

[3]