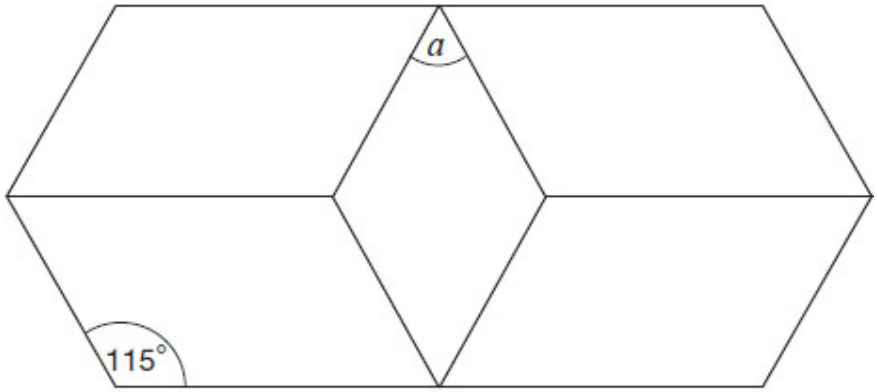
Angles (Q1-10) and Data Handling (Q11-22)

Choose your own areas to practise (complete at least 10 questions)

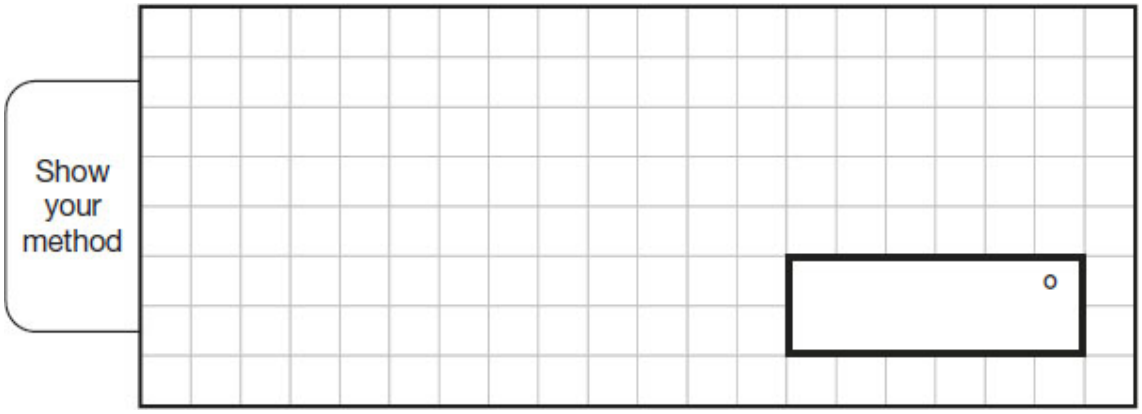
Q1.

This diagram shows four identical parallelograms and a rhombus.



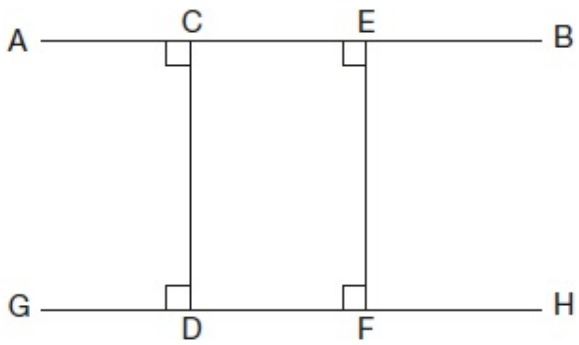
Not to scale

Calculate the size of angle a.



2 marks

Q2.



Tick **all** the correct statements.

AB is parallel to CD ☐

GH is parallel to AB ☐

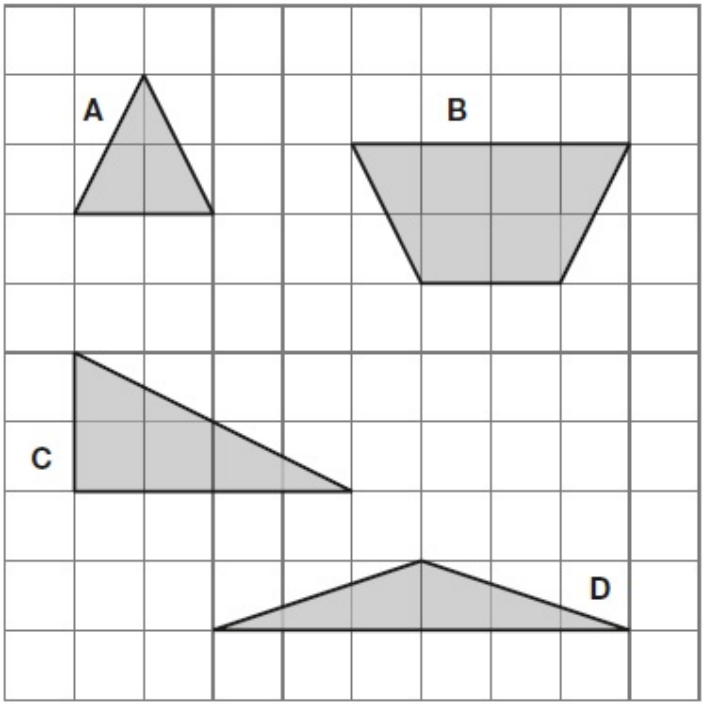
CD is perpendicular to GH ☐

EF is perpendicular to CD ☐

1 mark

Q3.

Here are four shapes on a grid.



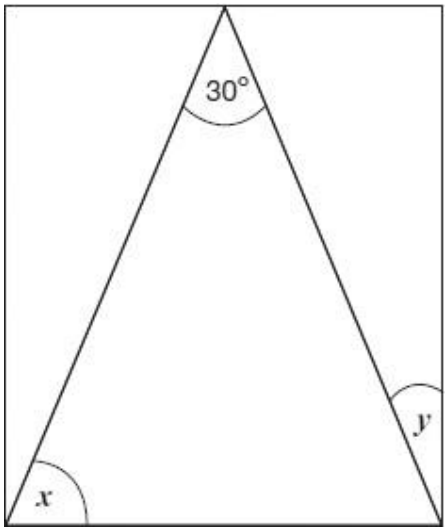
Write the letters of **all** the shapes that have **only two** acute angles.

_____

1 mark

Q4.

Here is an **isosceles** triangle inside a rectangle.



Not to scale

Calculate the sizes of angles x and y.

Show your method

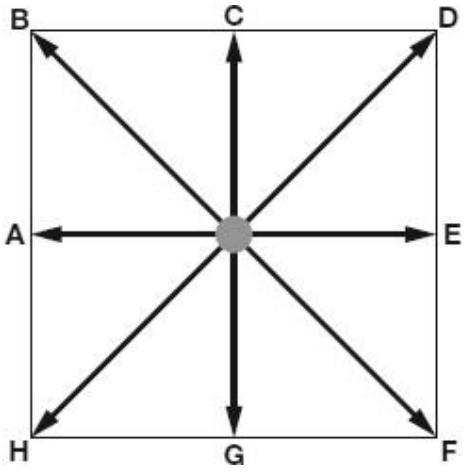
$y =$ °

$x =$ °

2 marks

Q5.

Stefan stands in the centre of this square.



Not actual size

Stefan is facing towards **F**.

He turns **anti-clockwise** to face **D**.

What **angle** does Stefan turn through?

degrees

1 mark

Stefan is now facing towards **D**.

He turns **3 right angles clockwise**.

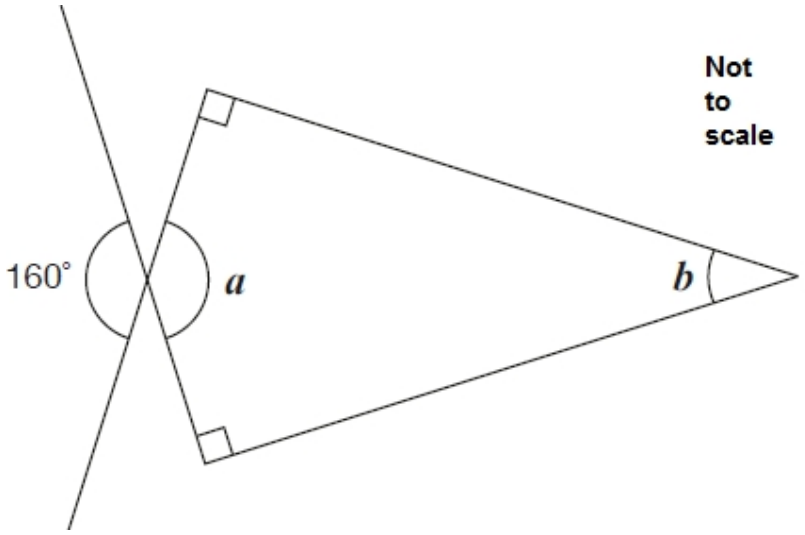
Write the **letter** he faces after the turn.

_____

1 mark

Q6.

Calculate the size of angles a and b in this diagram.



$a =$ ____ °

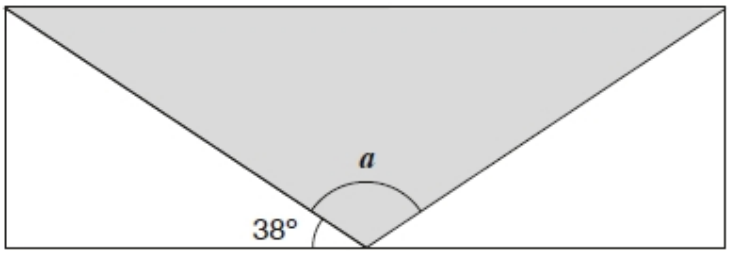
1 mark

$b =$ ____ °

1 mark

Q7.

A shaded **isosceles** triangle is drawn inside a rectangle.



Not to scale

Calculate the size of angle a.

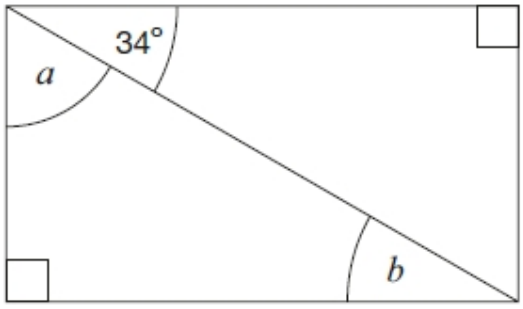
Show your method

°

2 marks

Q8.

Here is a rectangle.



Not to scale

Calculate the size of angles a and b.

Do **not** measure the angles.

$a =$ ☐ °

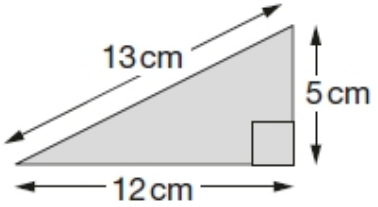
1 mark

$b =$ ☐ °

1 mark

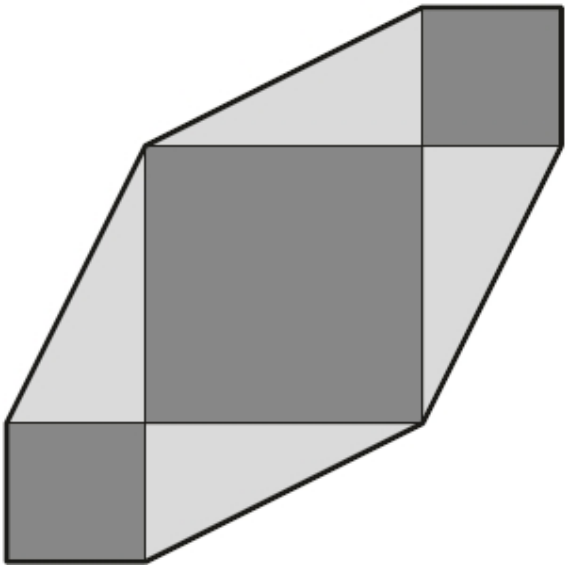
Q9.

Chen has some right-angled triangular tiles.



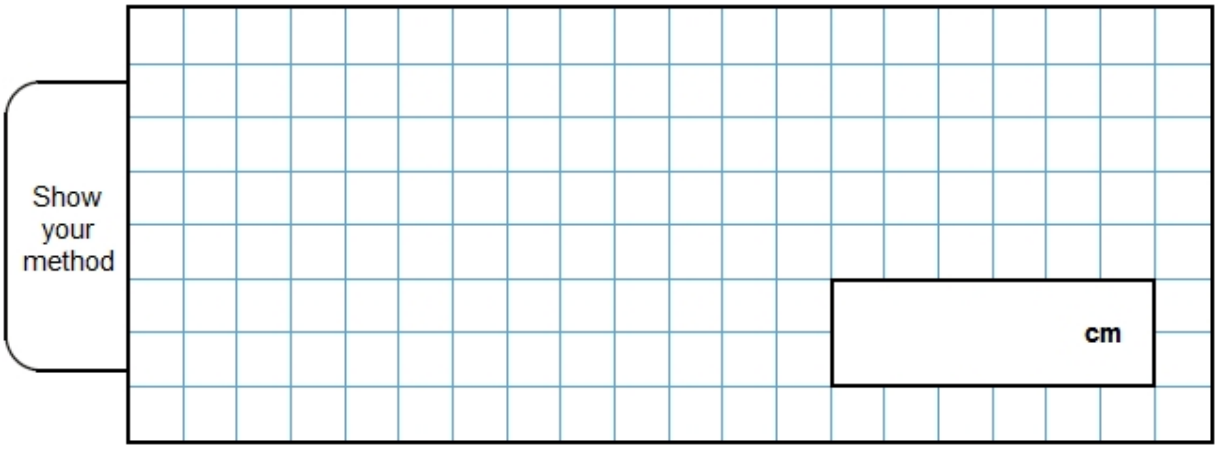
Not actual size

He makes this shape with four of his triangular tiles and three square tiles.



Not actual size

What is the **perimeter** of Chen's shape?



2 marks

Q10.

Anna has four **different** triangles.

Complete the table to show the size of the angles in each triangle.

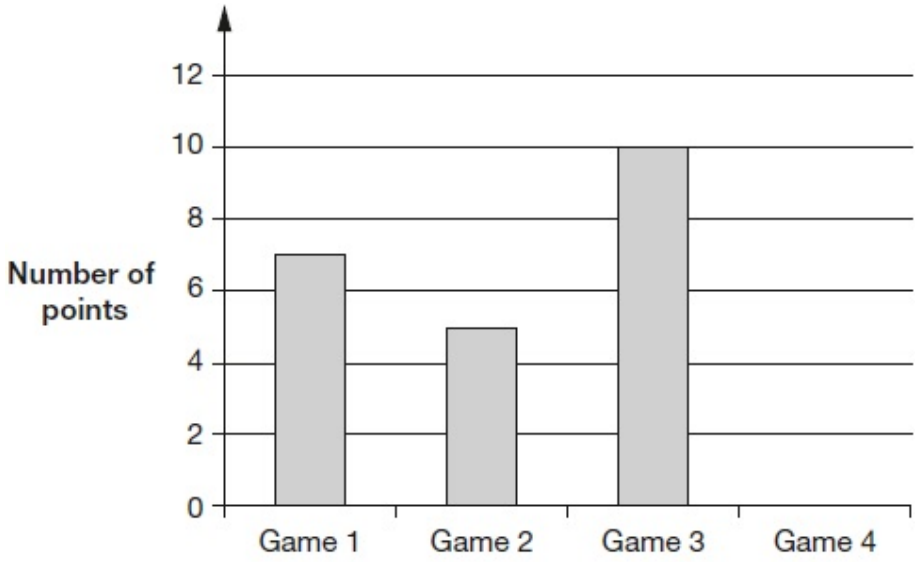
Type of triangle	Angle 1	Angle 2	Angle 3
Isosceles	90°		
Right-angled	80°		
Isosceles	70°		
Isosceles	70°		

2 marks

Q11.

Layla plays basketball.

This graph shows how many points she scored in her first 3 games.



After 4 games, Layla had scored a total of 25 points.

Complete the graph.

Use a ruler.

1 mark

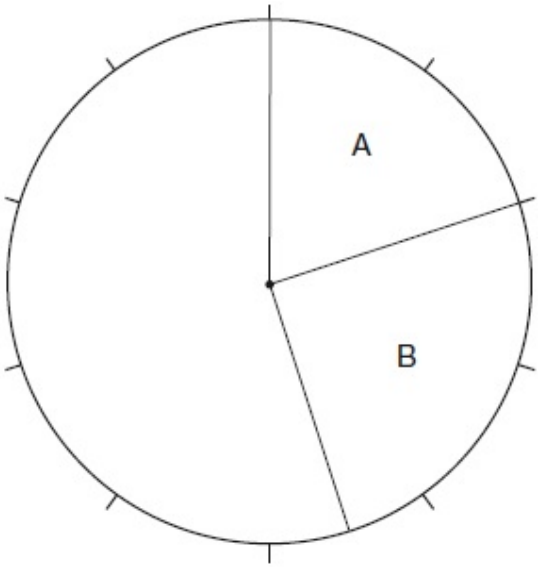
Q12.

Look at the data in this table.

Label	Percentage
A	20%
B	25%
C	15%
D	30%
E	10%

Using this data, draw **two** lines and write **three** labels to complete the pie chart.

Use a ruler.



2 marks

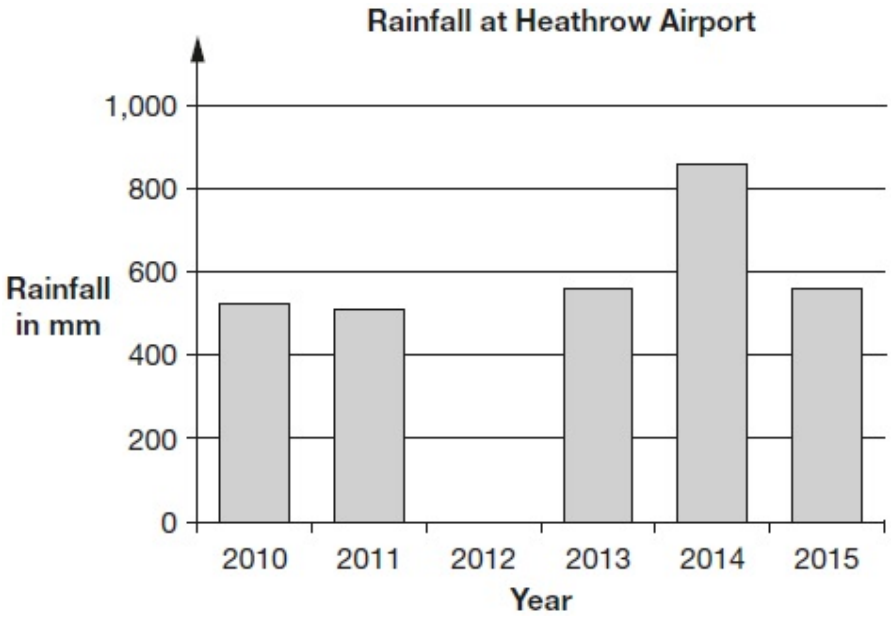
Q13.

This table shows the total rainfall and sunshine each year at Heathrow Airport from 2010 to 2015.

Year	Rainfall in mm	Sunshine in hours
2010	521	1,371
2011	509	1,540
2012	700	1,503
2013	560	1,452
2014	864	1,669
2015	562	1,508

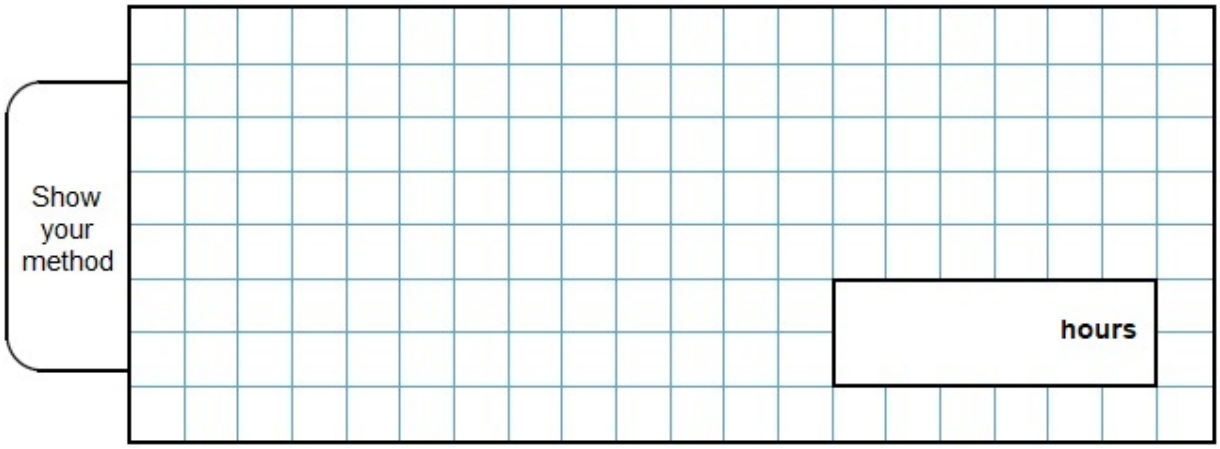
Use this table to complete the graph.

Use a ruler.



1 mark

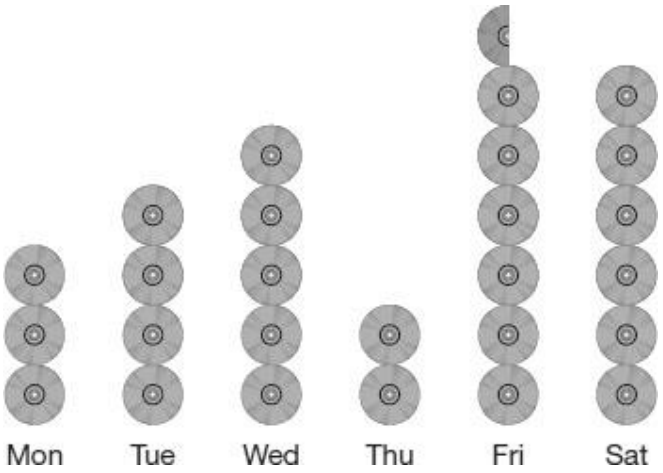
Use the table to calculate the **mean** hours of sunshine for Heathrow Airport from **2013** to **2015**.



2 marks

Q14.

This pictogram shows how many DVDs a shop sells in one week.



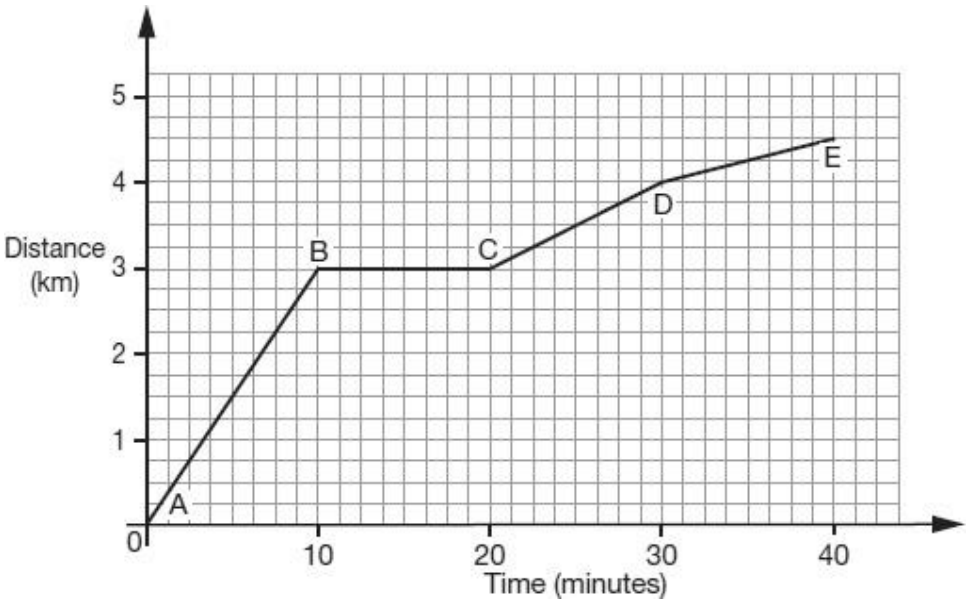
On **Monday**, 24 DVDs were sold.

How many DVDs were sold on **Friday**?

1 mark

Q15.

Look at the graph below that shows Dev's bike ride.



Match each part of Dev's journey to the correct sentence.

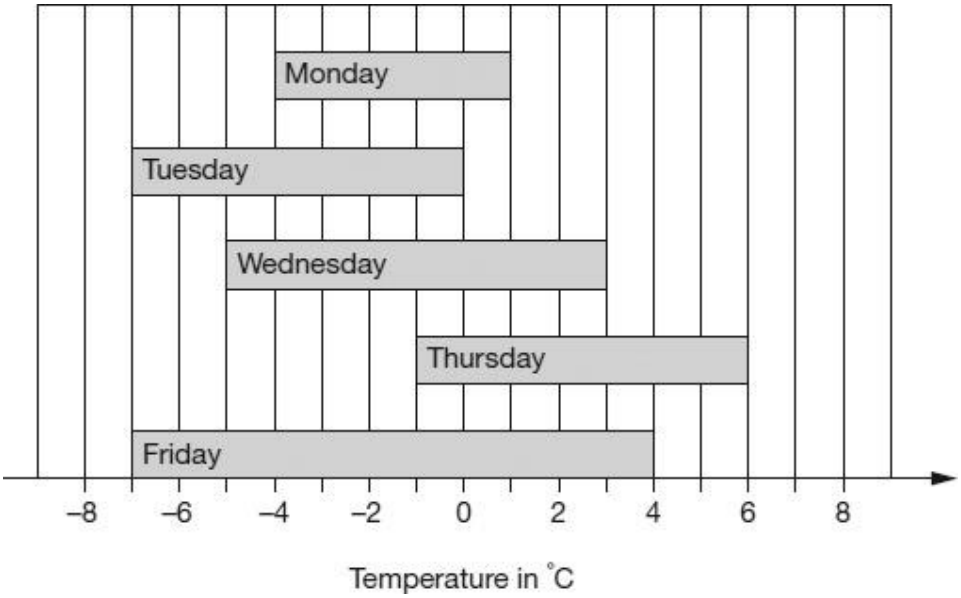
A to B	Dev rests for 10 minutes.
B to C	Dev cycles 1 km in 10 minutes.

C to D	Dev cycles 3 km in 10 minutes.
D to E	Dev cycles less than 1km in 10 minutes.

1 mark

Q16.

This chart shows the range of temperatures each day during one week from Monday to Friday.



What was the **lowest** temperature?

°C

1 mark

What was the difference between the highest and lowest temperatures on **Wednesday**?

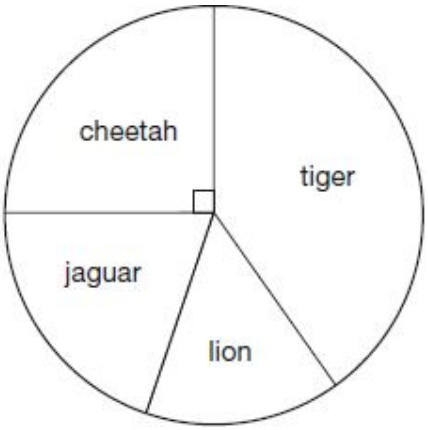
°C

1 mark

Q17.

This chart shows the number of different types of big cat in a zoo.

There are **20** big cats in the zoo altogether.



Here are some statements about the chart.

Tick the statements that are **true**.

There are more cheetahs than jaguars. ☐

The total number of lions and tigers is 10 ☐

One-quarter of the big cats are cheetahs. ☐

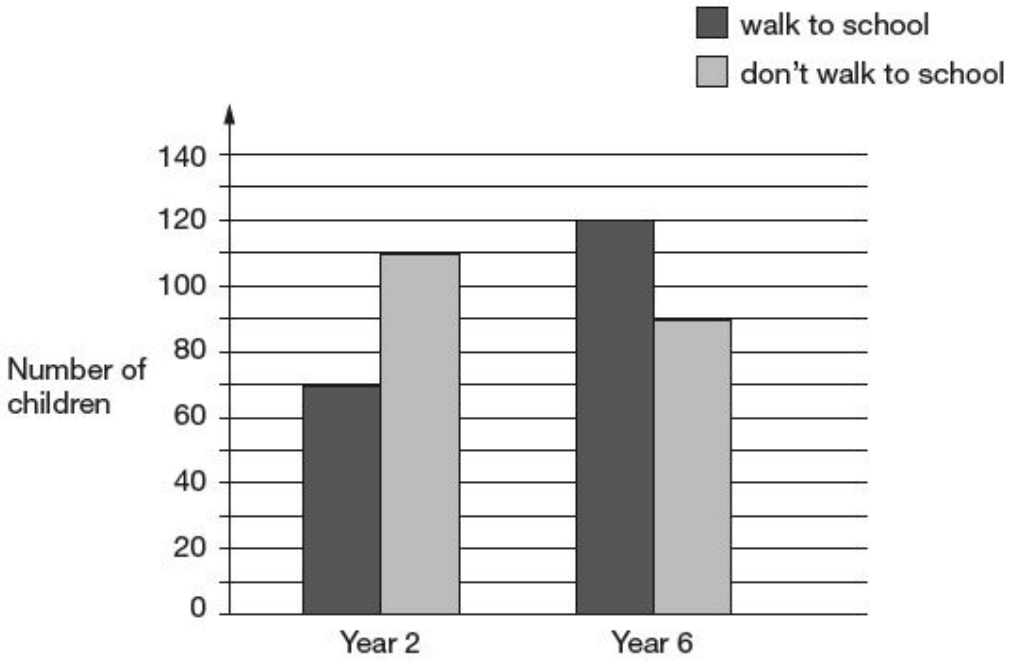
There are more than 5 jaguars. ☐

2 marks

Q18.

William asks the children in Year 2 and Year 6 if they walk to school.

This graph shows the results.



Altogether, how many children **don't** walk to school?

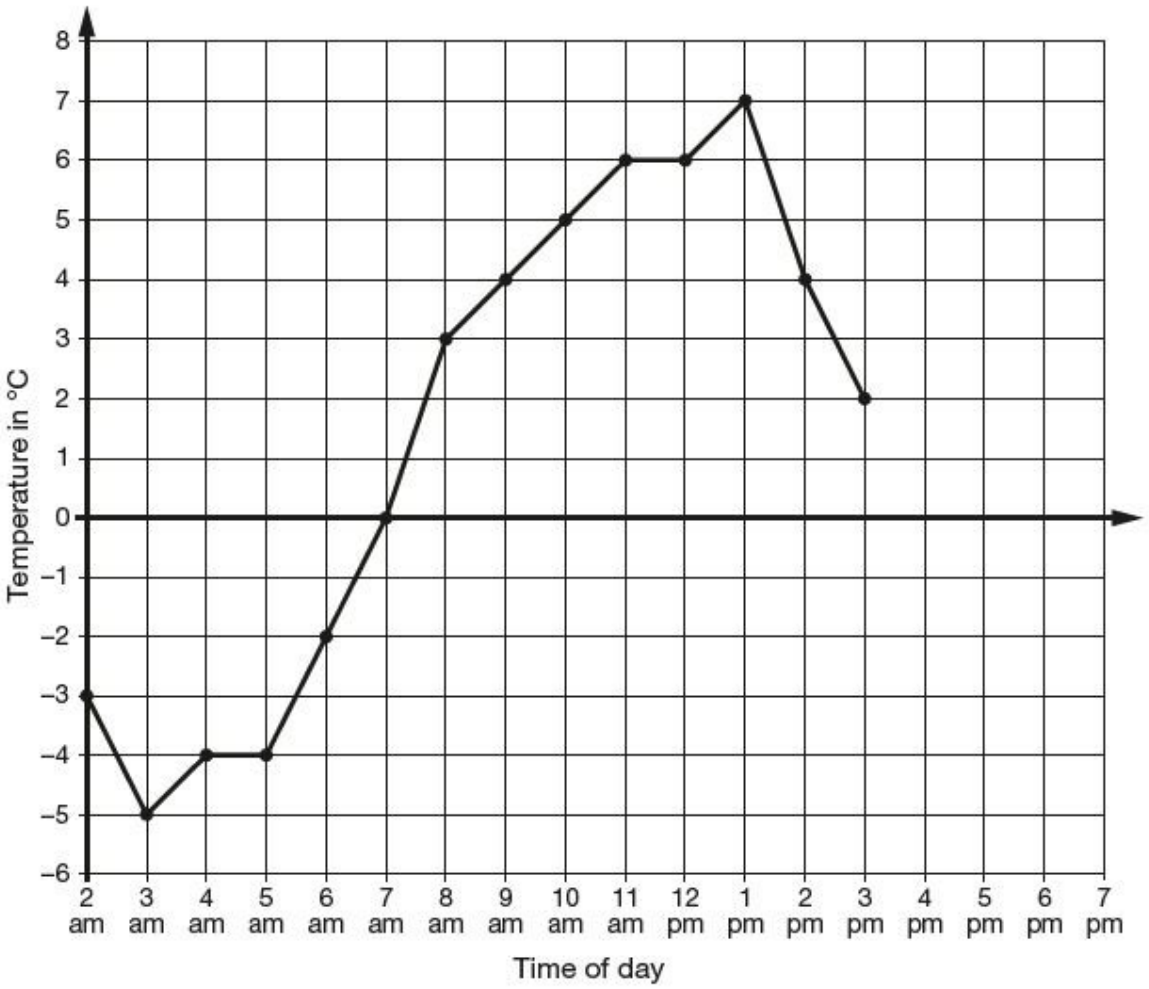
1 mark

How many **more** Year 6 children than Year 2 children walk to school?

1 mark

Q19.

This graph shows the temperature in °C from 2 am to 3 pm on a cold day.



How many degrees **warmer** was it at 3 pm than at 3 am?

°C

1 mark

At 6 pm the temperature was 4 degrees lower than at 3 pm.

What was the temperature at 6 pm?

°C

1 mark

Q20.

Here is the morning timetable for Chen's class this week.

Time	Mon	Tue	Wed	Thu	Fri

9:00 am – 10:30 am	Maths	English	Maths	English	Maths
10:30 am – 11:00 am	Break	Break	Break	Break	Break
11:00 am – 12:00 pm	English	Maths	Science	Maths	English

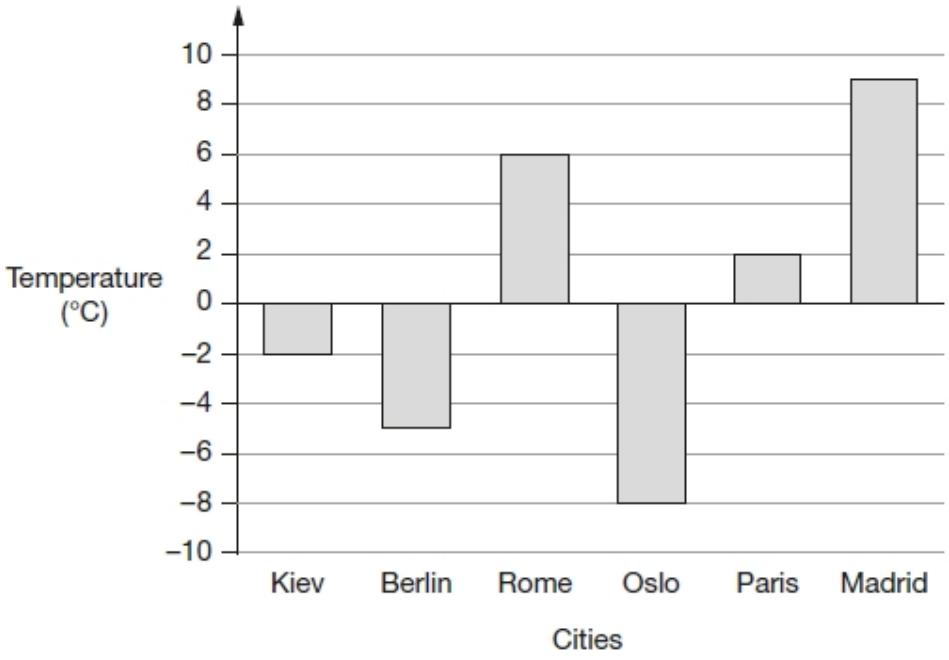
What is the **total** number of hours for **English** on this timetable?

hours

1 mark

Q21.

This graph shows the temperature in six cities on one day in January.



Which city was 4 degrees **warmer** than Kiev?

_____

1 mark

What was the **difference** between the temperature in Oslo and the temperature in Berlin?

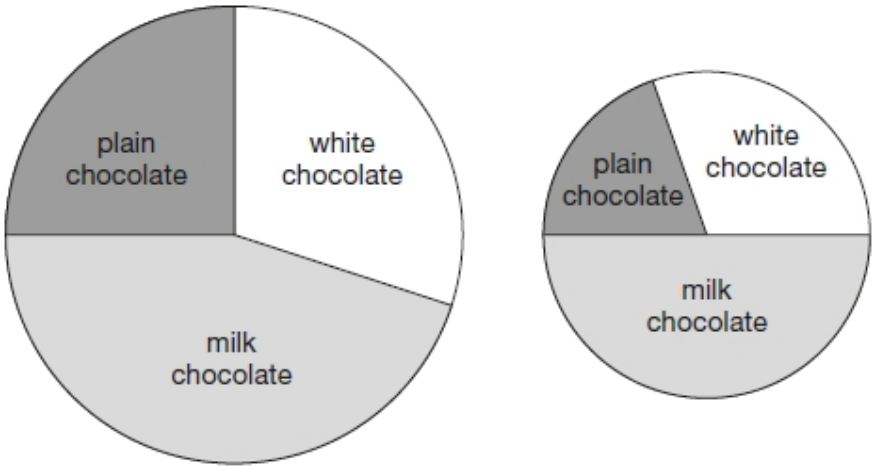
°C

1 mark

Q22.

100 girls and 50 boys were asked which kind of chocolate they like best.

These two pie charts show the results.



Dev says:

"The pie charts show that more girls than boys liked milk chocolate best."

Dev is correct.

Explain how you know.

1 mark

Answers on the next sheet

Answers

Q1.

Award **TWO** marks for the correct answer of 50°

If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, e.g.

- 115 × 2 = 230
  360 − 230 = 130
  130 ÷ 2 = 65°
  65° + 65° = 130°
  180° − 130°

OR

- 115 × 2 = 230
  360 − 230 = 130
  130 × 2 = 260°
  360° − 260° = 100°
  100° ÷ 2

Award **ONE** mark for sight of:

- 130

OR

- 65

*Answer need not be obtained for the award of **ONE** mark.*

Up to 2m

[2]

Q2.

Award **ONE** mark for two boxes ticked correctly, as shown:

AB is parallel to CD	
GH is parallel to AB	✓
CD is perpendicular to GH	✓
EF is perpendicular to CD	

Accept alternative unambiguous positive indication of the correct answer.

[1]

Q3.

Award **ONE** mark for the correct answer of B, C **AND** D.

Accept correct letters in any order.

Accept alternative unambiguous positive indication of the correct answer.

[1]

Q4.

Award **TWO** marks for the correct answer of x = 75 **AND** y = 15

If the answer is incorrect, award **ONE** mark for evidence of an appropriate method calculating both angles, e.g.

- 180 − 30 = 150
  150 ÷ 2 = 70 *(error)*
  90 − 70

OR

Award **ONE** mark for either correct x OR y.

*Answer need not be obtained for the award of **ONE** mark.*

*If there is no evidence of an appropriate method and the values for x **AND** y are incorrect, accept for **ONE** mark $x + y = 90$, unless x is between 65 − 69 (inclusive) **AND** y is between 21 − 25 (inclusive).*

Up to 2m

[2]

Q5.

(a) 90

1

(b) B

Accept alternative unambiguous indication of the correct answer.

1

[2]

Q6.

(a) 160

1

(b) 20

*If the answers to a and b are incorrect, award **ONE** mark if a + b = 180° unless b is between 33° and 37° inclusive, or 90°.*

1

[2]

Q7.

Award **TWO** marks for the correct answer of 104°.

If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, e.g:

- 180 − 38 − 38 = a

  *Answer need not be obtained for the award of **ONE** mark.*

Up to 2

[2]

Q8.

(a) 56

1

(b) 34

*If the answers to (a) and (b) are incorrect, award **ONE** mark if their (a) plus their (b) = 90°, provided that (b) is **not** 45°, 30° or 60°.*

1

[2]

Q9.

Award **TWO** marks for the correct answer of 72

If the answer is incorrect, award **ONE** mark for evidence of appropriate working, eg:

- 13 × 4 = 52

  5 × 4 = 20

  52 + 20 = wrong answer

  *Working must be carried through to reach an answer for the award of **ONE** mark.*

Up to 2

[2]

Q10.

Completes all four rows of the table correctly, eg:

90°	**45°**	**45°**
80°	**90°**	**10°**
70°	**70°**	**40°**
70°	**55°**	**55°**

Accept angles within a row in either order

Accept the bottom two rows may be given in either order

! Condone omission of degree signs

! For 2 marks, do not accept correct angles in 3rd row repeated in 4th row, in either order

2

or

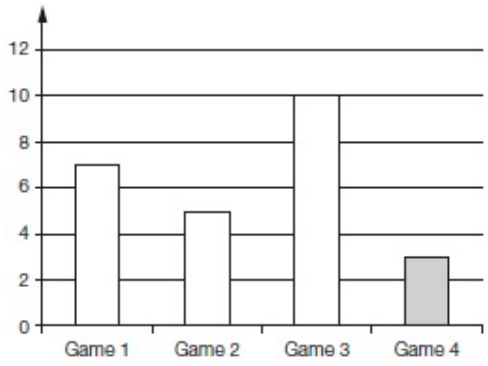
Completes three rows correctly

1

[2]

Q11.

Award **ONE** mark for drawing the bar in the range 2.5 – 3.5 points, e.g.

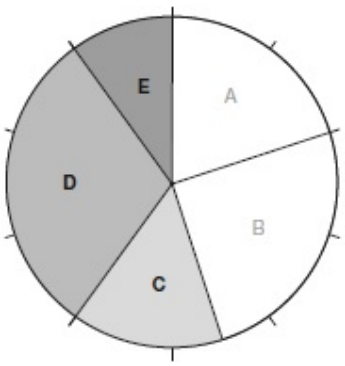


Ignore the width of the bar.

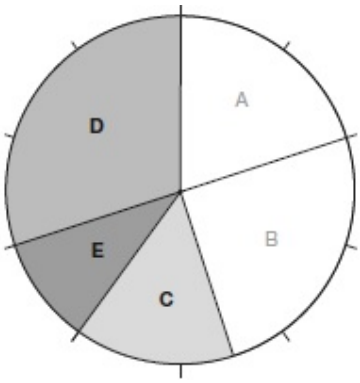
[1]

Q12.

Award **TWO** marks for three sectors drawn **AND** labelled correctly, e.g.



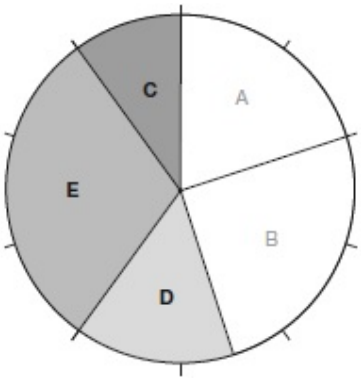
OR



If the answer is incorrect, award **ONE** mark for one sector drawn **AND** labelled correctly.

OR

Three sectors drawn correctly but either unlabelled **OR** labelled incorrectly, e.g.



Accept slight inaccuracies in the drawing of the sectors as long as the intention is clear.

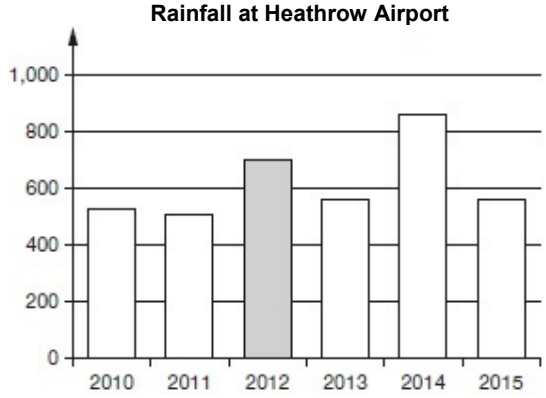
Accept sectors C, D and E drawn in any order as long as each sector is drawn correctly.

Up to 2m

[2]

Q13.

(a) Award **ONE** mark for drawing the bar in the range of 650 mm to 750 mm, e.g.



Ignore the width of the bar.

1

(b) Award **TWO** marks for the correct answer of 1,543

If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, e.g.

- 1,452 + 1,669 + 1,508 = 4,629
  4,629 ÷ 3

OR

- 1,452 + 1,669 + 1,508 = 4619 (error)
  4619 ÷ 3

Award **ONE** mark for sight of 4629 (as evidence of the sum of sunshine hours)

*Answer need not be obtained or rounded for the award of **ONE** mark.*

Any acceptable rounding or truncating does not negate an appropriate method. Any value which does not result from correct rounding or truncating implies an additional step not shown.

Up to 2m

[3]

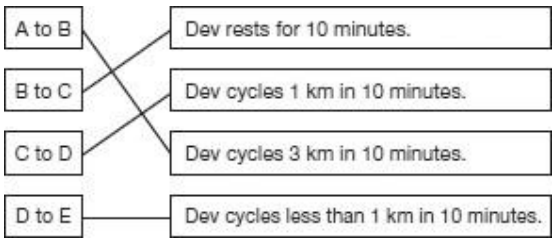
Q14.

52

[1]

Q15.

Award **ONE** mark for each part of Dev's journey matched with the correct sentence, as shown:



Lines need not touch the boxes, provided the intention is clear.

***Do not** accept any part of the journey which has been matched to more than one sentence.*

[1]

Q16.

(a) −7

***Do not** accept 7−*

1

(b) 8

***Do not** accept −8*

1

[2]

Q17.

Award **TWO** marks for only two correct boxes ticked, as shown:

There are more cheetahs than jaguars.	✓
The total number of lions and tigers is 10	
One-quarter of the big cats are cheetahs.	✓
There are more than 5 jaguars.	

Award **ONE** mark for:

- only one correct box ticked and no incorrect boxes ticked

OR

- two correct boxes ticked and one incorrect box ticked.

Accept alternative unambiguous positive indications, e.g. Y.

Up to 2 marks

[2]

Q18.

(a) 200

1

(b) 50

1

[2]

Q19.

(a) 7

1

***Do not** accept −7 or 7−*

(b) −2

1

***Do not** accept 2−*

[2]

Q20.

5

Do not *accept 300 (minutes).*

[1]

Q21.

(a) Paris

1

(b) 3

Do not *accept −3.*

1

[2]

Q22.

Award **ONE** mark for an explanation which recognises that the two pie charts represent different numbers of children, e.g:

- '25 boys like milk chocolate best and more than 25 girls do'
- 'It's almost half of 100 girls and that's more than half of 50 boys'
- 'The pie chart shows that half of the boys chose milk chocolate and that's 25. About 45 girls chose milk chocolate because it's nearly half of the girls' pie chart'
- '25 boys chose milk chocolate, but (whole number in the range 40-49) girls chose milk chocolate'
- 'There are twice as many girls as boys so a quarter of the girls' pie chart is the same number as half of the boys' pie chart, and it's more than a quarter of the girls'
- $\frac{1}{2}$ of 50 boys chose milk = 25

  $\frac{1}{4}$ of 100 girls chose plain = 25

  and from the girls' pie chart it is obvious that more chose milk than plain'
- 'There are twice as many girls as boys and the sizes of the pie charts show this and the area for boys who like milk chocolate is smaller than the area for girls who like it'.

Do not *accept vague or incomplete explanations, e.g:*

- *'100 is more than 50'*
- *'More girls took part than boys so more girls like milk chocolate'*
- *'The section for boys who like milk chocolate is smaller than the section for girls who like it'.*

Commentary: The pie charts are presented using the mathematical convention that their areas are proportional to the numbers they represent, i.e. in this example the chart for

girls has twice the area of the chart for boys.

[1]