Name: _____

Maths Genie Stage 3

Test C

Instructions

- Use **black** ink or ball-point pen.
- Answer all questions.
- Answer the questions in the spaces provided
  – *there may be more space than you need.*
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all your working out.**
- **Calculators may be used.**

Information

- The marks for each question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end

1 Work out $\sqrt{\dfrac{38.1 - 2.85}{2.8 + 1.97}}$

Write down all the figures on your calculator display.

1 mark for 7.3899...

2.718443876

(Total for Question 1 is 2 marks)

2 (a) Solve $x + 15 = 23$

$x = \underline{8}$

(1)

(b) Solve $h + h + h + h = 44$

$h = \underline{11}$

(1)

(Total for Question 2 is 2 marks)

3 $w = 2x^2 - 6$

$x = -5$

Work out the value of w.

$2(-5)^2 - 6$

1 for correct substitution

44

(Total for Question 3 is 2 marks)

4 Write the following numbers in order of size.
Start with the smallest number.

35% $\qquad \dfrac{3}{10} \qquad 0.295 \qquad 0.37 \qquad \dfrac{2}{5}$

$30\% \quad 29.5\% \quad 37\% \quad 40\%$

1 for correct conversions to all decimals or percentages

$0.295, \dfrac{3}{10}, 35\%, 0.37, \dfrac{2}{5}$

(Total for Question 4 is 2 marks)

5 Amelia wants to buy 5 sausage rolls.

Each sausage roll costs 93p

Amelia pays with a £20 note.

(a) Work out how much change Amelia will get from £20.

$$5 \times 0.93 = £4.65$$ 1 mark for £4.65

$$20 - 4.65 = £15.35$$

£ *15.35*

(2)

(b) When in the shop Amelia finds out that the price of the sausage rolls has been increased.

How does this affect the amount of change she will get?

She will get less change

(1)

(Total for Question 5 is 3 marks)

6 Here is a stem and leaf diagram showing the mass, in grams, of some apples.

15	5					
16	1	2	3	5	6	6
17	0	3	5	5	8	
18	0	1	3	5		

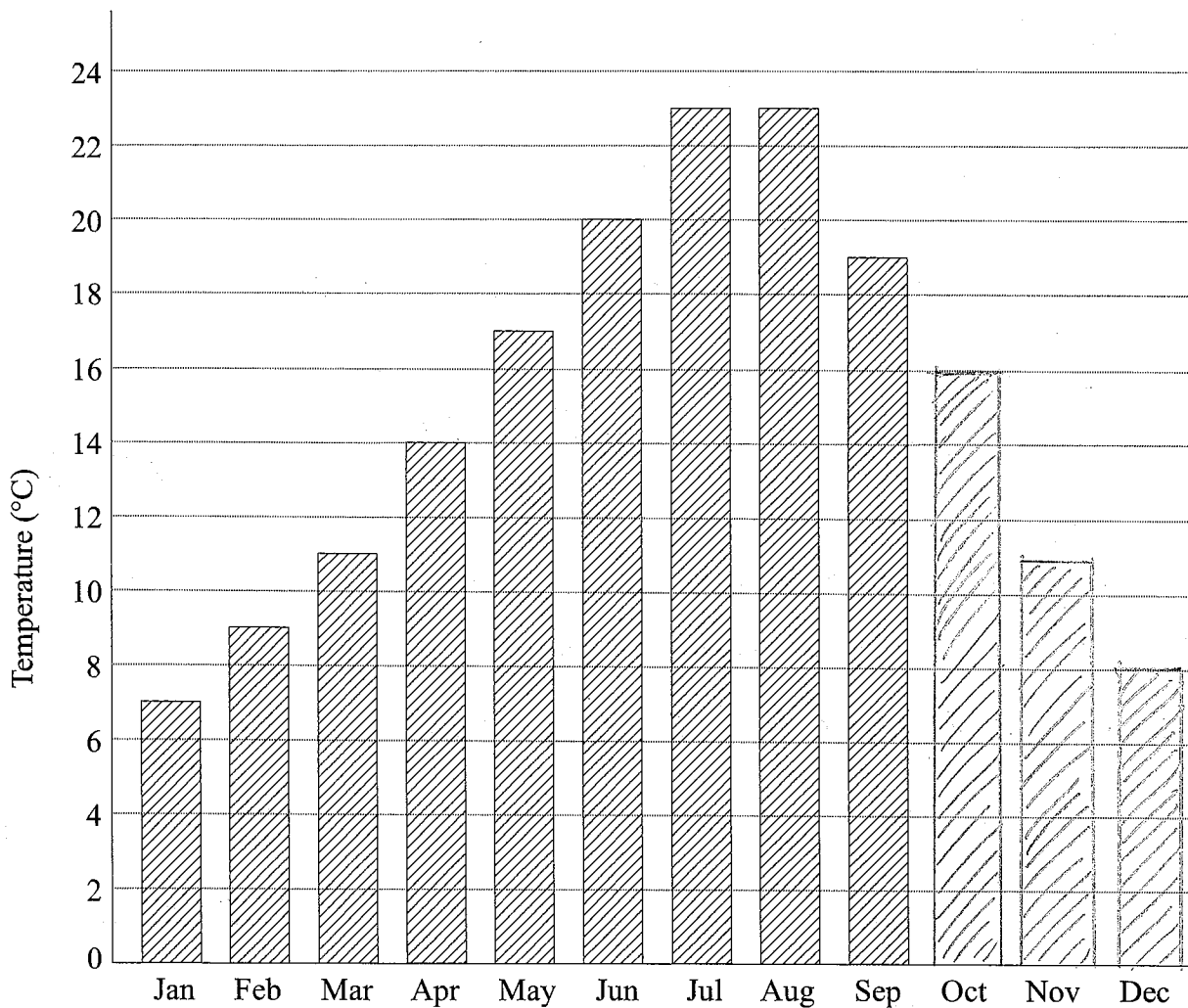Key: 15 | 5 = 155 grams

Work out the median mass.

$$\frac{170 + 173}{2} = 171.5$$

1 for identifying 170 and 173

171.5 g

(Total for Question 6 is 2 marks)

7 Here is a bar chart showing the average maximum monthly temperature (°C) in Greenwich.

Here are the average monthly temperatures in October, November and December.

October	16°C
November	11°C
December	8°C

(a) Complete the bar chart to show this information.

(1)

(b) In which two months were the lowest average temperatures recorded?

.Jan..................... and .Dec.....................

(1)

(Total for Question 7 is 2 marks)

8   Here is a list of 10 numbers.

$$4 \quad 4 \quad 5 \quad 5 \quad 5 \quad 6 \quad 6 \quad 7 \quad 8 \quad 9$$

(a) Find the mode.

.... 5 ....
(1)

(b) Calculate the mean.

$$\frac{4 + 4 + 5 + 5 + 5 + 6 + 6 + 7 + 8 + 9}{10}$$
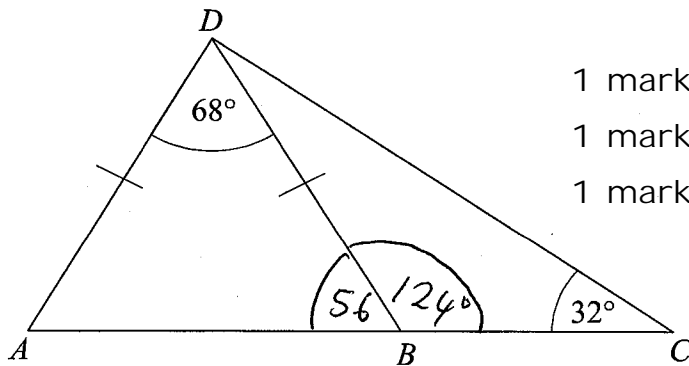
1 mark for correct method   .... 5.9 ....
(2)

(Total for Question 8 is 3 marks)

9   *ABC* is a straight line. Work out the size of the angle *BDC*.

1 mark for 56

1 mark for use of angles in a straight line

1 mark for use angles in a triangle

$$180 - 68 = 112°$$

$$\frac{112}{2} = 56°$$

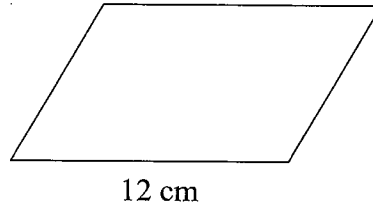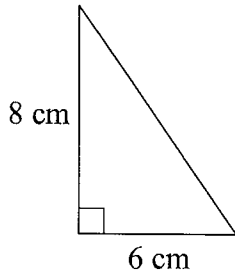$$180 - 56 = 124$$

$$180 - 124 - 32 = 24°$$

.... 24 .... °

(Total for Question 9 is 4 marks)

10 The diagram shows a right angled triangle and a parallelogram.

8 cm

6 cm

12 cm

The area of the parallelogram is three times the area of the triangle.

The perpendicular height of the parallelogram is h.

Find the value of h.

Area of triangle $= \frac{1}{2} \times 6 \times 8$

$= 24 \ cm^2$

1 for correct method to find area of the triangle

Area of parallelogram $= 3 \times 24 = 72 \ cm^2$

$12 \times h = 72$

$h = 6 \ [cm]$

1 mark for correct method to find h

$h =$ _____6_____

(Total for Question 10 is 3 marks)