

Name: _____

Maths Genie Stage 4

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 not 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 Change 800 millilitres to litres

..... 0.8 litres

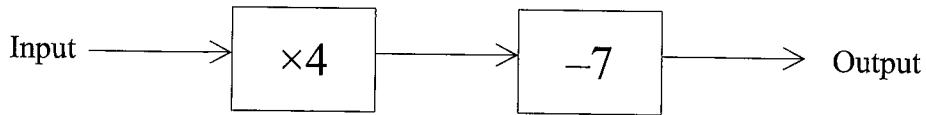
(Total for Question 1 is 1 mark)

2 Change 50 kilograms to grams.

..... 50 000 grams

(Total for question 2 is 1 mark)

3 Here is a number machine.



(a) What is the **output** when the **input** is 5?

$$5 \times 4 = 20$$

$$20 - 7 = 13$$

..... 13
(1)

(b) What is the **input** when the **output** is 29?

$$29 + 7 = 36$$

$$36 \div 4 = 9$$

1 mark for $29+7$ or 36

..... 9
(2)

(Total for Question 3 is 3 marks)

4 Which is greater

24% of 140 or 31% of 110

You must show your working.

$$\frac{140}{10} = 14 \quad (10\%)$$

$$\frac{140}{100} = 1.4 \quad (1\%)$$

$$1.4 \times 4 = 5.6 \quad (4\%)$$

1 mark for 33.6

$$\begin{array}{r} 14 \\ 14 \\ \hline 5.6 \\ \hline 33.6 \end{array}$$

All 3 marks for **(Total for Question 4 is 3 marks)**

33.6, 34.1 and correct answer

$$\frac{110}{10} = 11 \quad (10\%)$$

$$\frac{110}{100} = 1.1 \quad (1\%)$$

$$11 \times 3 = 33 \quad (30\%)$$

$$33 + 1.1 = \underline{34.1} \quad (31\%)$$

1 mark for 34.1

31% of 110

5 (a) Write the ratio 25 : 40 in its simplest form.

$$\div 5 \quad \div 5$$

$$5 : 8$$

$$5 : 8$$

(1)

(b) There are red shapes and blue shapes in a box, $\frac{5}{8}$ of the shapes are red.

Write the ratio of red shapes to blue shapes.

$$\frac{5}{8} : \frac{3}{8}$$

$$5 : 3$$

$$5 : 3$$

(1)

(Total for Question 5 is 2 marks)

6 The accurate scale drawing shows two towns, Town A and Town B.

Town A
X

X Town B

The scale is 1:50000

Find the real distance between Town A and Town B, in kilometres.

5cm

1 mark for 5cm

$$\begin{aligned} 5 \times 50\,000 &= 250\,000 \text{ cm} && \text{1 mark for fully} \\ &= 2500 \text{ m} && \text{correct method} \\ &= 2.5 \text{ km} \end{aligned}$$

..... 2.5 km

(Total for Question 6 is 3 marks)

7 Stan has an income of £3000 a month.

He spends $\frac{2}{5}$ of his income on rent.

$$\frac{3000}{5} = 600 \quad 2 \times 600 = 1200$$

He spends $\frac{4}{15}$ of his income on bills.

$$\frac{3000}{15} = 200 \quad 4 \times 200 = 800$$

He spends $\frac{1}{10}$ of his income on food.

$$\frac{3000}{10} = 300$$

Stan saves the rest of his income.

Work out how much Stan saves each month.

1 mark for 1200, 800 or 300

stan spends ~~600 + 200 + 300 = £1100~~
 $1200 + 800 + 300 = £2300$
stan saves $3000 - 2300 = \underline{\underline{£700}}$

1 mark for 2300 or just one mistake

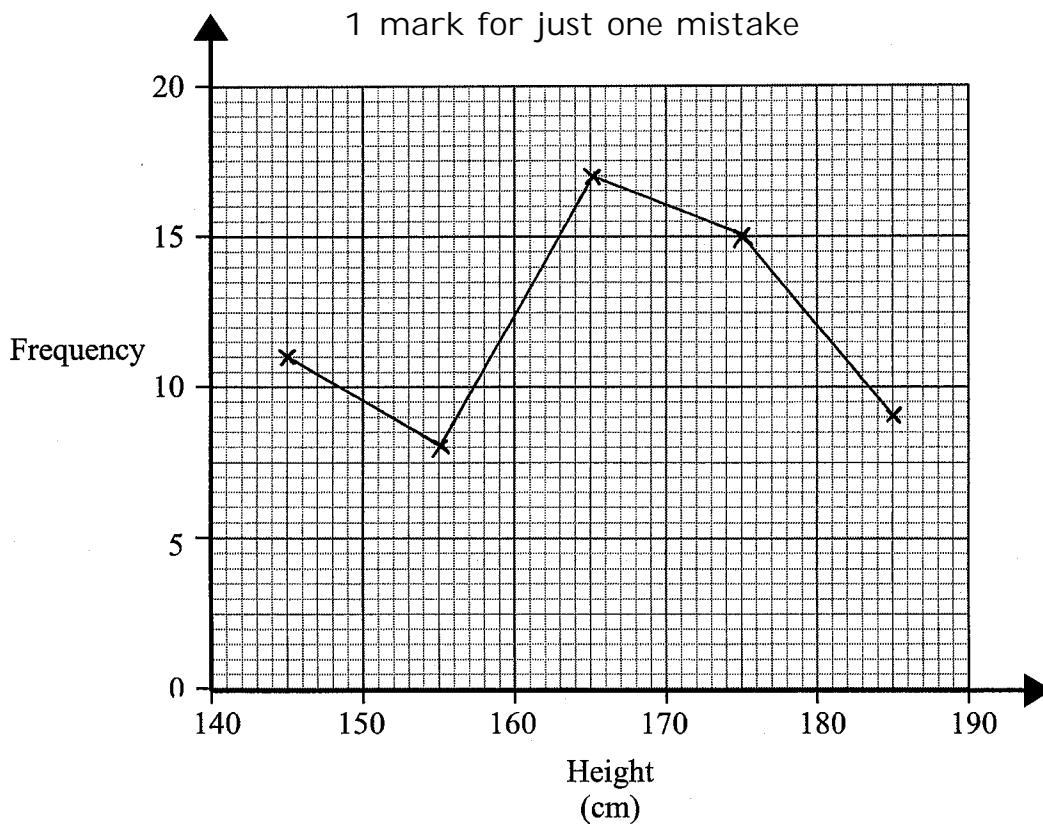
£.....700.....

(Total for question 7 is 3 marks)

8 The frequency table shows the heights, in cm, of some tomato plants.

Height (cm)	Frequency
$140 < h \leq 150$	11
$150 < h \leq 160$	8
$160 < h \leq 170$	17
$170 < h \leq 180$	15
$180 < h \leq 190$	9

Draw a frequency polygon to show this information.



(Total for Question 8 is 2 marks)

9 (a) Work out $2\frac{1}{3} + 1\frac{2}{5}$.

$$5 \times \frac{7}{3} + \frac{7 \times 3}{5 \times 3}$$

$$\frac{35}{15} + \frac{21}{15} = \frac{56}{15} = 3\frac{11}{15}$$

1 mark for same denominators

$$\frac{3\frac{11}{15}}{(2)}$$

(b) Work out $2\frac{1}{4} \div \frac{3}{5}$

Give your answer as a mixed number in its simplest form.

$$\frac{9}{4} \div \frac{3}{5}$$

$$\frac{9}{4} \times \frac{5}{3} = \frac{45}{12} = 3\frac{9}{12} = 3\frac{3}{4}$$

1 mark for 45/12 or equivalent

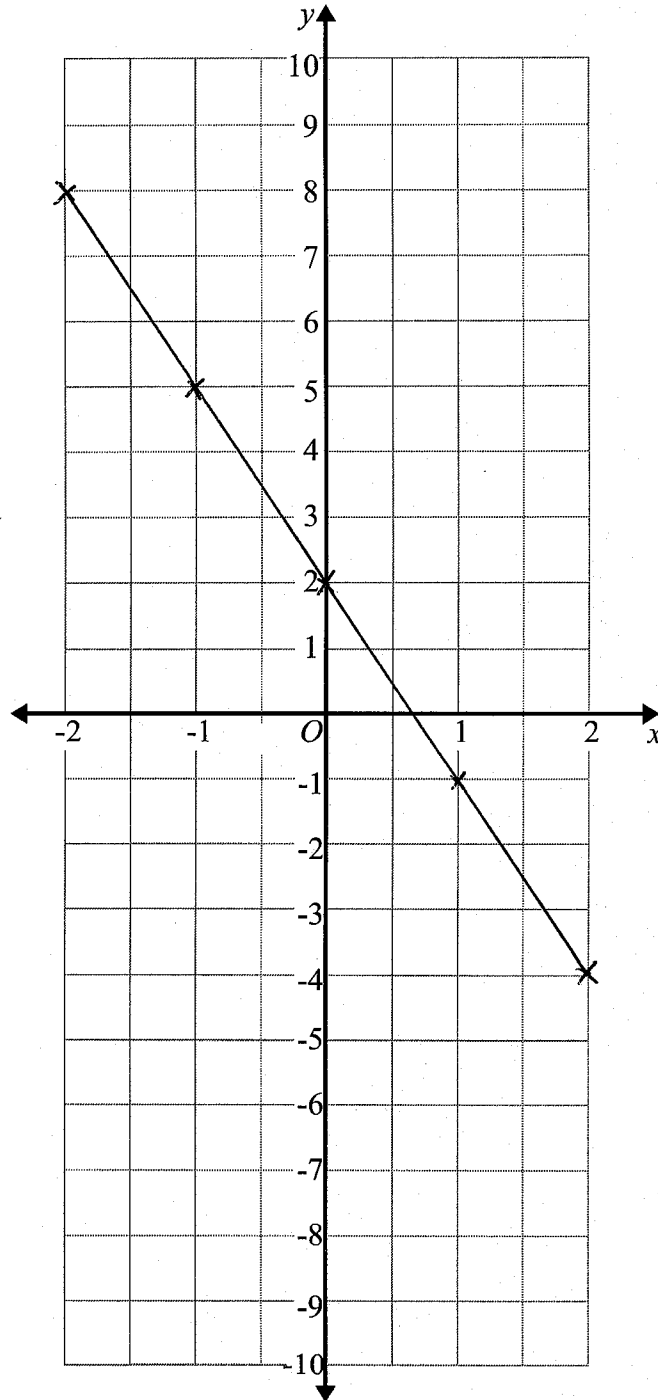
$$\frac{3\frac{3}{4}}{(2)}$$

(Total for Question 9 is 4 marks)

10 On the grid, draw the graph of $y = 2 - 3x$ for values of x from -2 to 2

x	-2	-1	0	1	2
y	8	5	2	-1	-4

1 mark for any correct coordinates/table



1 mark for just one mistake

(Total for Question 10 is 3 marks)