Name: _____

Maths Genie Stage 4

Test A

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 18 metres to cm.

1800 cm

(Total for Question 7 is 1 mark)

2 Change 700 metres to kilometres.

0.7 km

(Total for Question 8 is 1 mark)

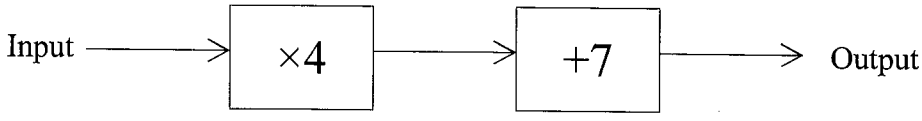
3 Work out $\frac{4}{7}$ of 63 1 mark of 63/7 or 9

$\frac{63}{7} = 9$ $4 \times 9 = 36$

36

(Total for Question 10 is 2 marks)

4 Here is a number machine.



(a) What is the **output** when the **input** is 3?

$3 \times 4 = 12$

$12 + 7 = 19$

19

(1)

(b) What is the **input** when the **output** is 55?

$55 - 7 = 48$ 1 mark of 5-7 or 48

$48 \div 4 = 12$

12

(2)

(Total for Question 4 is 3 marks)

5 (a) Write the ratio 40 : 16 in its simplest form

10 : 4

5 : 2

5 : 2

(1)

(b) $\frac{5}{7}$ of chocolates in a box are white chocolate, the rest are milk chocolate.

Write the ratio of white chocolates to milk chocolates.

$\frac{5}{7} : \frac{2}{7}$

5 : 2

5 : 2

(1)

(Total for Question 5 is 2 marks)

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6 A map has the scale of 1:50000

The distance between two points on the map is 15 cm.

Work out the real distance between the two points. Give your answer in kilometres.

15 x 50000 1 for 15 x 50000

750000 cm

7500 m 1 for dividing by 100 and dividing by 1000 or dividing by 100000

7.5 km

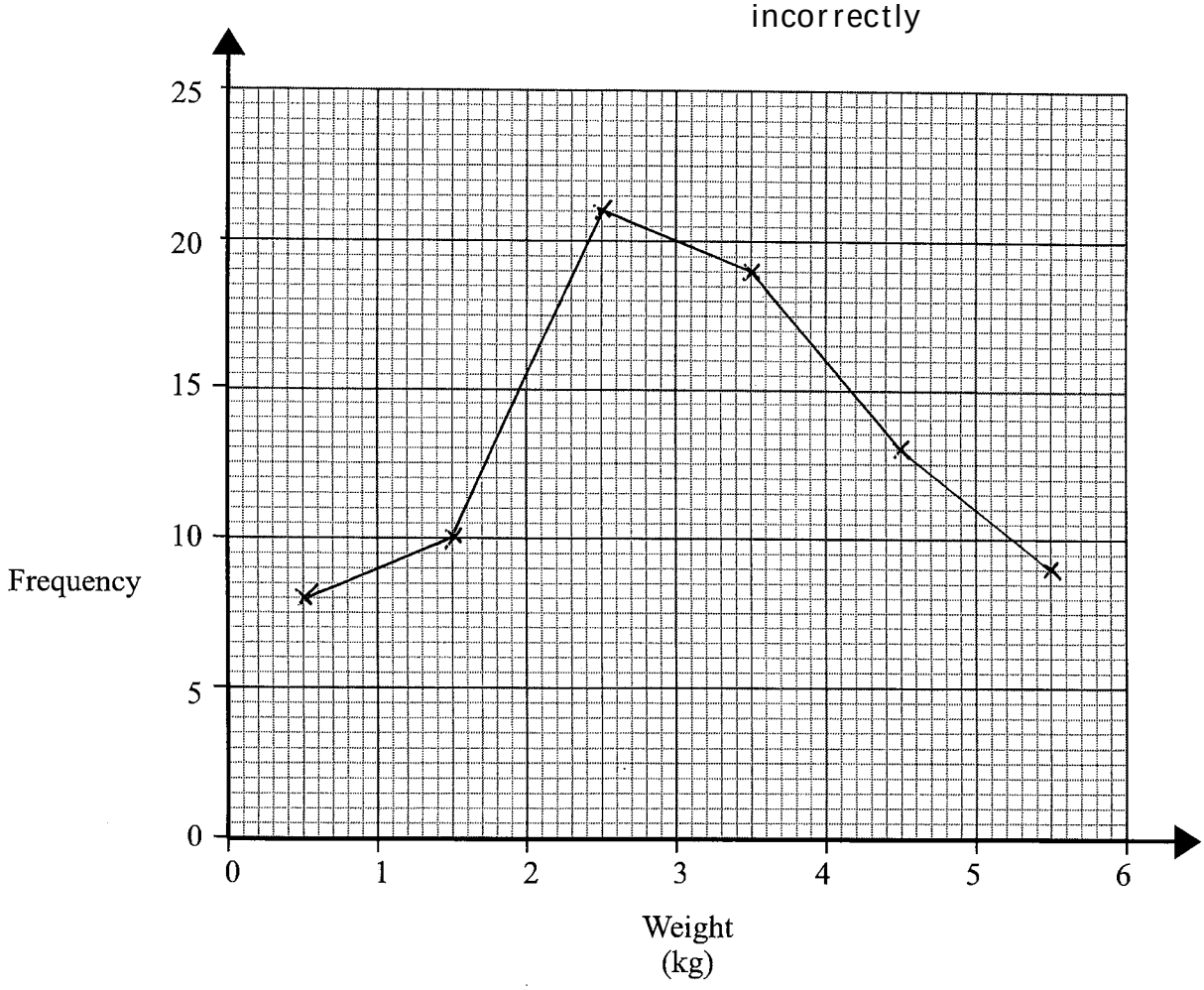
(Total for Question 6 is 3 marks)

7 The frequency table shows the weight, in kg, of some cats.

Weight (kg)	Frequency
$0 < w \leqslant 1$	8
$1 < w \leqslant 2$	10
$2 < w \leqslant 3$	21
$3 < w \leqslant 4$	19
$4 < w \leqslant 5$	13
$5 < w \leqslant 6$	9

Draw a frequency polygon to show this information.

1 mark for just one point plotted incorrectly



(Total for Question 7 is 2 marks)

8 (a) Work out $\frac{2}{9} + \frac{3}{8}$

$8 \times \frac{2}{9} + \frac{3}{8} \times 9$

$8 \times \frac{2}{9}$

$\frac{16}{72} + \frac{27}{72} = \frac{43}{72}$

1 for same denominators

$\frac{43}{72}$

(2)

(b) Work out $\frac{4}{5} \div \frac{2}{7}$

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

$\frac{4}{5} \times \frac{7}{2} = \frac{28}{10} = \frac{14}{5} = 2\frac{4}{5}$

1 mark for 28/10 or 14/5

$2\frac{4}{5}$

(2)

(Total for Question 8 is 4 marks)

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9 Which is greater

30% of 260 or 45% of 175

You must show your working.

$\frac{260}{10} = 26 \quad (10\%)$

$26 \times 3 = 78 \quad (30\%)$

78

1 mark of 78

$\frac{175}{10} = 17.5 \quad (10\%)$

$\frac{17.5}{2} = 8.75 \quad (5\%)$

$17.5 \times 4 = 70 \quad (40\%)$

78.75

1 mark for 78.75

45% of 175

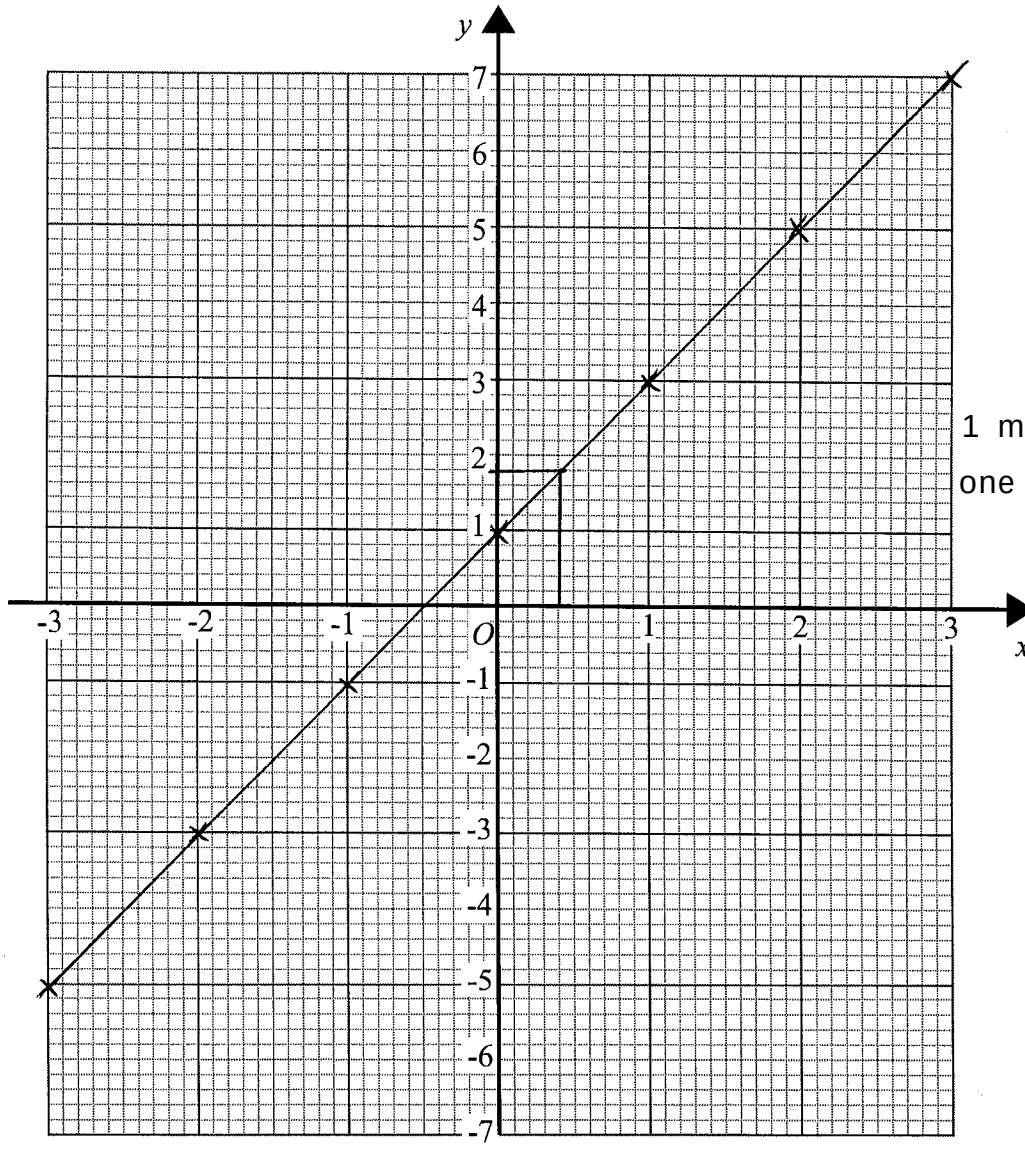
All 3 marks for 78, 78.75 and correct answer

(Total for Question 9 is 3 marks)

10 (a) On the grid, draw the graph of $y = 2x + 1$ for x values from -3 to 3

x	-3	-2	-1	0	1	2	3
y	-5	-3	-1	1	3	5	7

1 mark for any correct coordinates/table



1 mark for just one mistake

(3)

(b) Use your graph to find the value of x when $y = 1.8$

0.4

(1)

(Total for Question 10 is 4 marks)