Name: _____

Maths Genie Stage 5

Test B

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 Amelia and Sophie did a test.
The total for the test was 75 marks.

Amelia got 44% of the 75 marks.
Sophie got 35 out of 75

Who got the highest mark?
You must show all your working.

$$0.44 \times 75 = 33 \text{ Marks}$$

$$35 > 33$$

Sophie

(Total for Question 1 is 2 marks)

2 Solve $3y + 7 = 34$

$$-7 \quad -7$$
$$3y = 27$$
$$y = 9$$

$y = $ _____ 9 _____

(Total for Question 2 is 2 marks)

3 *ABC* is a straight line.

A ———— B ———————————— C

The length of *BC* is three times the length of *AB*.

AC = 72 metres.
Work out the length *BC*.

$$AB : BC$$
$$1 : 3$$

$$\frac{72}{4} = 18 \qquad 18 \times 3 = 54 m$$

_____ 54 _____ metres

(Total for Question 3 is 2 marks)

4   80 students study a language at a school.
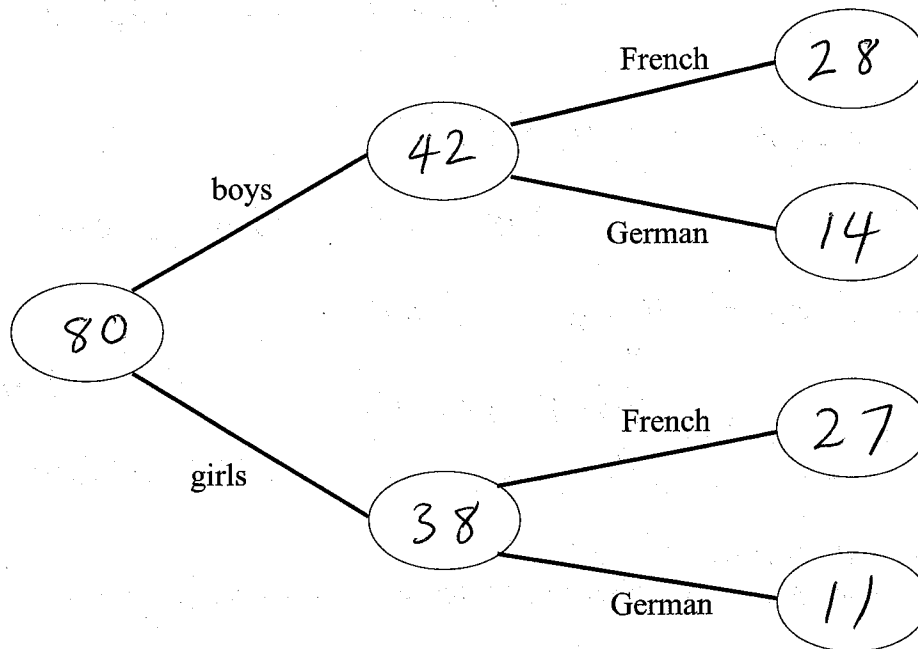Each student either studies French or German.

42 of the students are boys.

$\frac{2}{3}$ of the boys study French

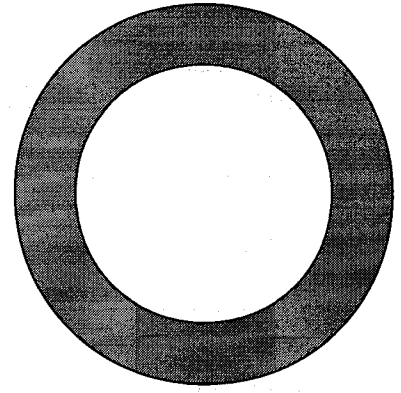$$\frac{2}{3} \times 42 = 28$$

55 students study French

Use this information to complete the frequency tree.

French — 28
boys — 42
German — 14
80
girls — 38
French — 27
German — 11

(Total for Question 4 is 3 marks)

5 The diagram shows a shaded ring formed by cutting a smaller circle out of a larger circle.

The radius of the smaller circle is 5 cm.
The diameter of the larger circle is 13 cm.

Find the area of the shaded ring. $r = 6.5 cm$

LARGE CIRCLE AREA $= \pi (6.5)^2$

$= \dfrac{169}{4} \pi$ OR $132.7 cm^2$

SMALL AREA $= \pi (5)^2$

$= 25\pi$ OR $78.5 cm^2$

SHADED AREA $= \dfrac{169}{4}\pi - 25\pi$

$= \dfrac{69}{4}\pi$ OR 54.2

.............54.2.............cm²

(Total for Question 5 is 3 marks)

6 There are 180 students in year 7 at a school.
All of these students either walk to school, get the bus to school or cycle to school.

84 of the students are boys.
39 of the students get the bus to school.
27 of the 51 students that walk to school are boys.
46 girls cycle to school.

Complete the two way table.

	Walk	Bus	Cycle	Total
Boys	27	13	44	84
Girls	24	26	46	96
Total	51	39	90	180

(Total for Question 6 is 3 marks)

7 A pair of trainers cost 3400 rupees in India.
The same pair of trainers cost £68 in the UK.

The exchange rate is £1 = 91 rupees.

Work out the difference between the cost of the trainers in India and in the UK.
Give your answer in pounds (£).

$$\frac{3400}{91} = £37.36$$

$$68 - 37.36 = £30.64$$

£ ......30.64......

(Total for Question 7 is 3 marks)

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8 Lottie buys a pack of 50 cans of lemonade.
She pays £16 for the cans.

Lottie sells 31 of the cans for 50p each.
She sells the remaining cans for 30p each.

Work out Lottie's percentage profit.

$$31 \times 0.5 = £15.50$$

$$19 \times 0.3 = £5.70$$

$$15.50 + 5.70 = £21.20$$

$$Profit = 21.20 - 16 = £5.20$$

$$\% \; Profit = \frac{5.20}{16} \times 100$$

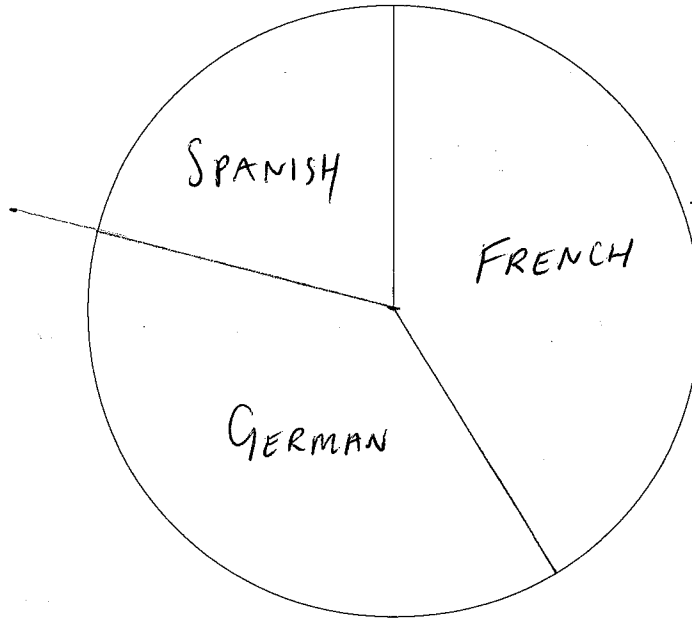......32.5...... %

$$= 32.5 \%$$

(Total for Question 8 is 3 marks)

9 The table gives information about the languages studied by year 11 students at school A.

Language	French	German	Spanish
Number of Students	37	34	19

Degrees   148   136   76

90
×4
360
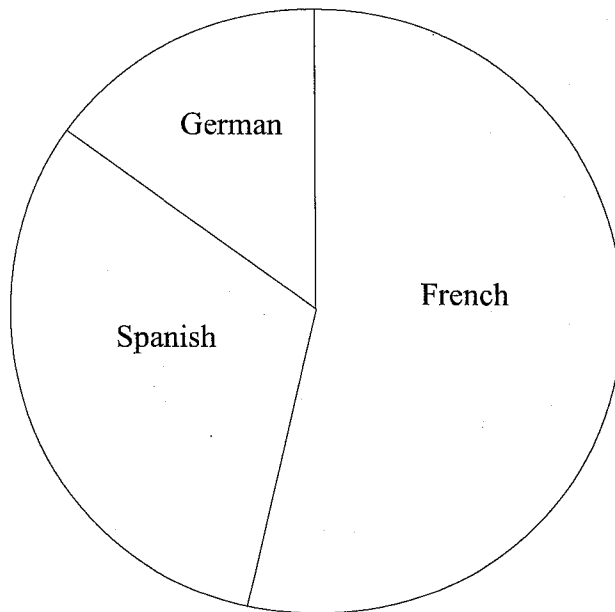
(a) Draw an accurate pie chart for this information

(3)

The pie chart below shows information about the languages studied by year 11 students at school B.

Maggie says: "the pie charts show that more year 11 students at school B study French"

(b) Is Maggie right?
You must explain your answer

No we don't know how many students study French in school B. We only know the proportion

(1)

(Total for Question 9 is 4 marks)