Write your name here

Surname	Other names

Grade One Paper
Level 1 / Level 2 GCSE
(9–1)

Centre Number | | | | | |

Candidate Number | | | | |

Mathematics Revision

Grade 1 - 3

Homework
Time: 2 hours 30 minutes

Paper Reference
Grade 1-3

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser.
Tracing paper may be used.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your surname and first name in the correct boxes.
- Answer **all** questions.
- Answer the questions in the spaces provided
  – *there may be more space than you need.*
- **You must show all your working.**
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- **Calculators may not be used.**

Information

- The total mark for this paper is 196
- 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.

Turn over ▶

Q1 Write the following numbers as words:

a 3,492.927

Three thousand, four hundred and ninety-two point nine two seven.

(1)

b 8,003.91

Eight thousand and three point nine one

(1)

c 2,402.1984

Two thousand, four hundred and two point one nine eight four

(1)

Q2 Write the following words as numbers:

a Seven thousand and eight; 7,008

(1)

b Sixteen thousand, two hundred and four; 16,204

(1)

c Seven million, twelve thousand, one hundred and two. 7,012,102

(1)

Q3 Write down the factor pairs of these numbers:

a 30

1 x 30 2 x 15 3 x 10 5 x 6

(2)

b 39

1 x 39 3 x 13

(2)

c 24

1 x 24 2 x 12 3 x 8 4 x 6

(2)

Q4 Put the following into ascending order:

a 0.21 -1 0.179 -0.61 0.3

-1, -0·61, 0·179, 0·21, 0·3

(1)

b 7 -2 12 -9 -3

-9, -3, -2, 7, 12

(1)

c 0.311 3.110 1.301 3.011 1.103

0·311, 1·103, 1·301, 3·011, 3·110

(1)

d -0.311 -3.110 -1.301 -3.011 -1.103

-3·110, -3·011, -1·301, -1·103, -0·311

(1)

e 803 8.03 8030 80.30 8300

8·03, 80·30, 803, 8030, 8300

(1)

Q5 Write the value of the following:

a $-12 - 7 =$ -19

b $-23 + 11 =$ -12

c $17 - 91 =$ -74

d $23 - (-5) =$ 28

e $17 - (-2) =$ 19

f $23 + (-8) =$ 15

g $15 - 33 =$ -18

h $6 - 15 =$ -9

i $-17 + 18 =$ 1

j $-8 + 21 =$ 13

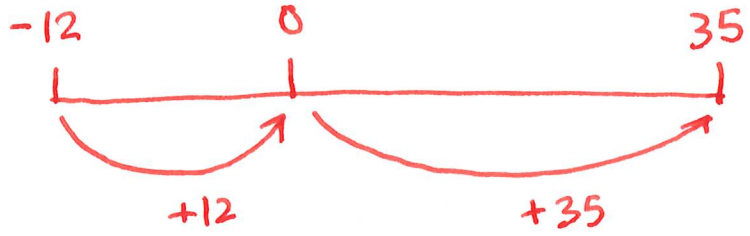
(10)

Q6 Write down the value of 17^0.

1

(1)

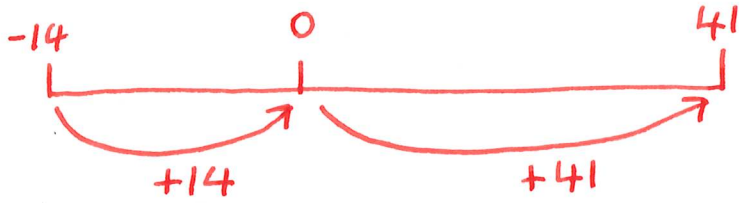
Q7 The temperature in Kumasi is 35°C. In Calgary on the same day, it is -12°C. What is the temperature difference between the two cities?



47°C

(2)

Q8 The temperature in Astana is -14°C. In Perth in Australia on the same day, it is 41°C. What is the temperature difference between the two cities?



55°C

(2)

Q9 The temperature in Tehran is 31°C. In Antarctica on the South Pole, it is 52.5 degrees colder. What is the temperature at the South Pole?

$52.5 - 31 = 21.5$

So $31 - 52.5 = -21.5$

-21.5°C

(2)

Q10 A line runs from (4,7) to (12,5). What are the co-ordinates of the midpoint of the line?

$x: \frac{4+12}{2} = \frac{16}{2} = 8$

$y: \frac{7+5}{2} = \frac{12}{2} = 6$

(8, 6)

(2)

Q11 A line runs from (-6,16) to (12,28). What are the co-ordinates of the midpoint of the line?

$x: \frac{-6+12}{2} = \frac{6}{2} = 3$

$y: \frac{16+28}{2} = \frac{44}{2} = 22$

(3, 22)

(2)

Q12 A line runs from (-3,9) to (14,22). What are the co-ordinates of the midpoint of the line?

$x: \frac{-3+14}{2} = \frac{11}{2} = 5\frac{1}{2}$

$y: \frac{9+22}{2} = \frac{31}{2} = 15\frac{1}{2}$

$(5\frac{1}{2}, 15\frac{1}{2})$

(2)

Q13 Simplify the following expressions:

a $4 \times 5 \times q =$ 20q (1)

b $4 \times 5a \times 3a =$ $60a^2$ (1)

$4 \times 5 \times 3 = 60$

$a \times a = a^2$

c $5a + 3b + a - 4b =$ 6a - b (1)

$5a + a = 6a$

$3b - 4b = -1b$

d $8(3x - 2) =$ 24x - 16 (1)

	3x	-2
8	24x	-16

e $4(6x + 4) =$ 24x + 16 (1)

	6x	+4
4	24x	+16

f $2 \times 3 \times d \times h =$ 6dh (1)

g $4a \times 2b \times 3c =$ 24abc (1)

h $5a + 3a^2 + a + 4a^2 =$ $7a^2 + 6a$ (1)

i $2(3x - 2) + 3(4x + 4) =$ 18x + 8 (1)

	3x	-2
2	6x	-4

	4x	+4
3	12x	+12

$6x - 4 + 12x + 12$

j $5(3x + 8) - 2(3x - 5) =$ 9x + 50 (1)

	3x	+8
5	15x	+40

	3x	-5
-2	-6x	+10

$15x - 6x = 9x$

$40 + 10 = 50$

Q14 Look at the function machines below.

Work out the missing quantities.

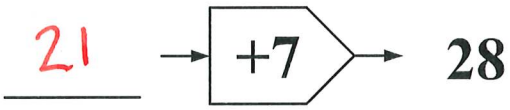
a

(1)

b

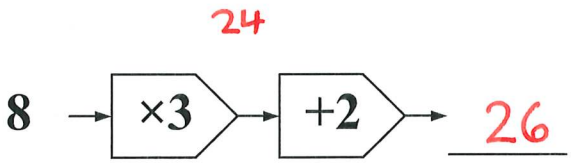
(1)

c



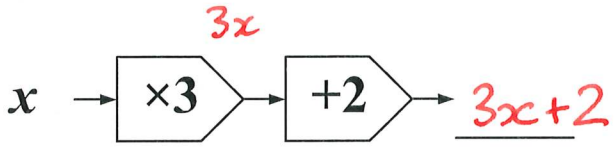
(1)

d



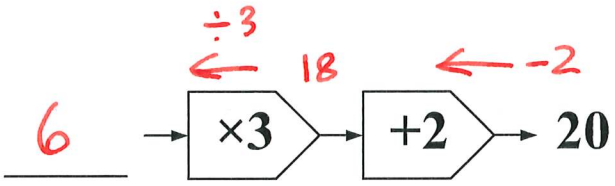
(1)

e



(1)

f



(1)

Q15 All the numbers in the answers below are integers. Write down all the possible values of x.

a $3 \leq x < 8$

3, 4, 5, 6, 7

(2)

b $7 \leq x \leq 12$

7, 8, 9, 10, 11, 12

(2)

c $-4 \leq x < 0$

-4, -3, -2, -1

(2)

d $-3 \leq x < 2$

-3, -2, -1, 0, 1

(2)

e $3 < x < 8$

4, 5, 6, 7

(2)

f $-3 < x < 4$

-2, -1, 0, 1, 2, 3

(2)

g $-1 \leq x \leq 4$

-1, 0, 1, 2, 3, 4

(2)

h $-6 \leq x \leq -2$

-6, -5, -4, -3, -2

(2)

i $9 < x < 17$

10, 11, 12, 13, 14, 15, 16

(2)

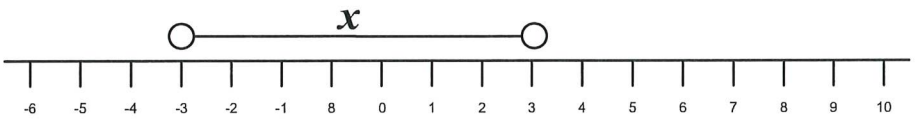
j $-6 < x < -2$

-5, -4, -3

(2)

Q16 State the inequalities shown by the following number lines.

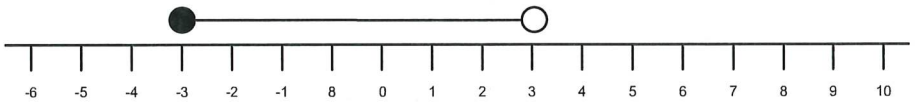
a



$-3 < x < 3$

(2)

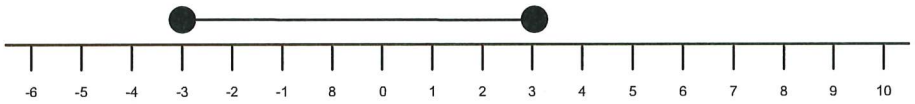
b



$-3 \leq x < 3$

(2)

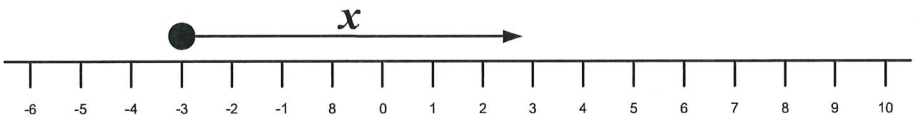
c



$-3 \leq x \leq 3$

(2)

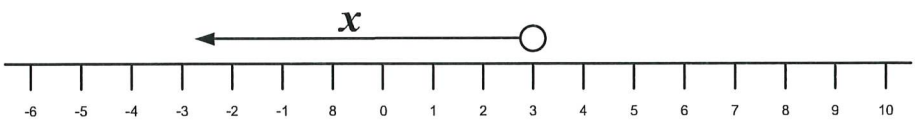
d



$-3 \leq x \quad \therefore \quad x \geq -3$

(2)

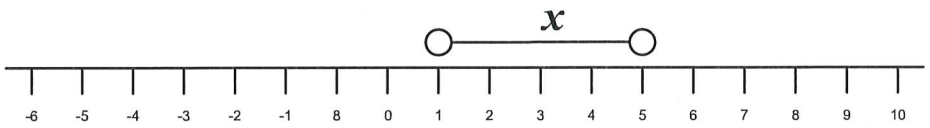
e



$x < 3$

(2)

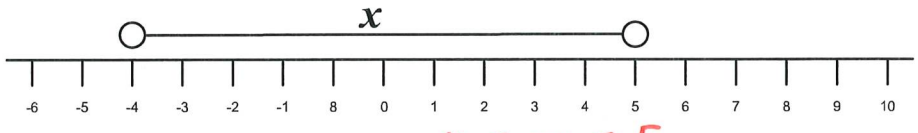
f



$1 < x < 5$

(2)

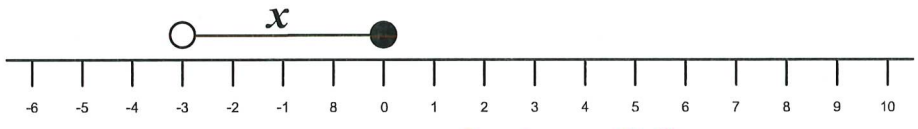
g



$-4 < x < 5$

(2)

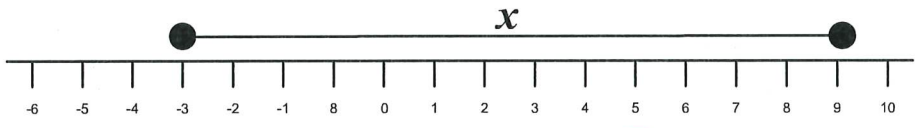
h



$-3 < x \leq 0$

(2)

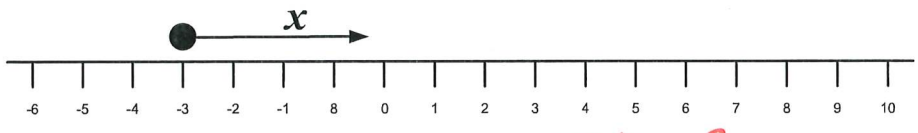
i



$-3 \leq x \leq 9$

(2)

j



$x \geq -3$

(2)

Q17 Billy asked his class how many pets they had. The results are shown in the list below.

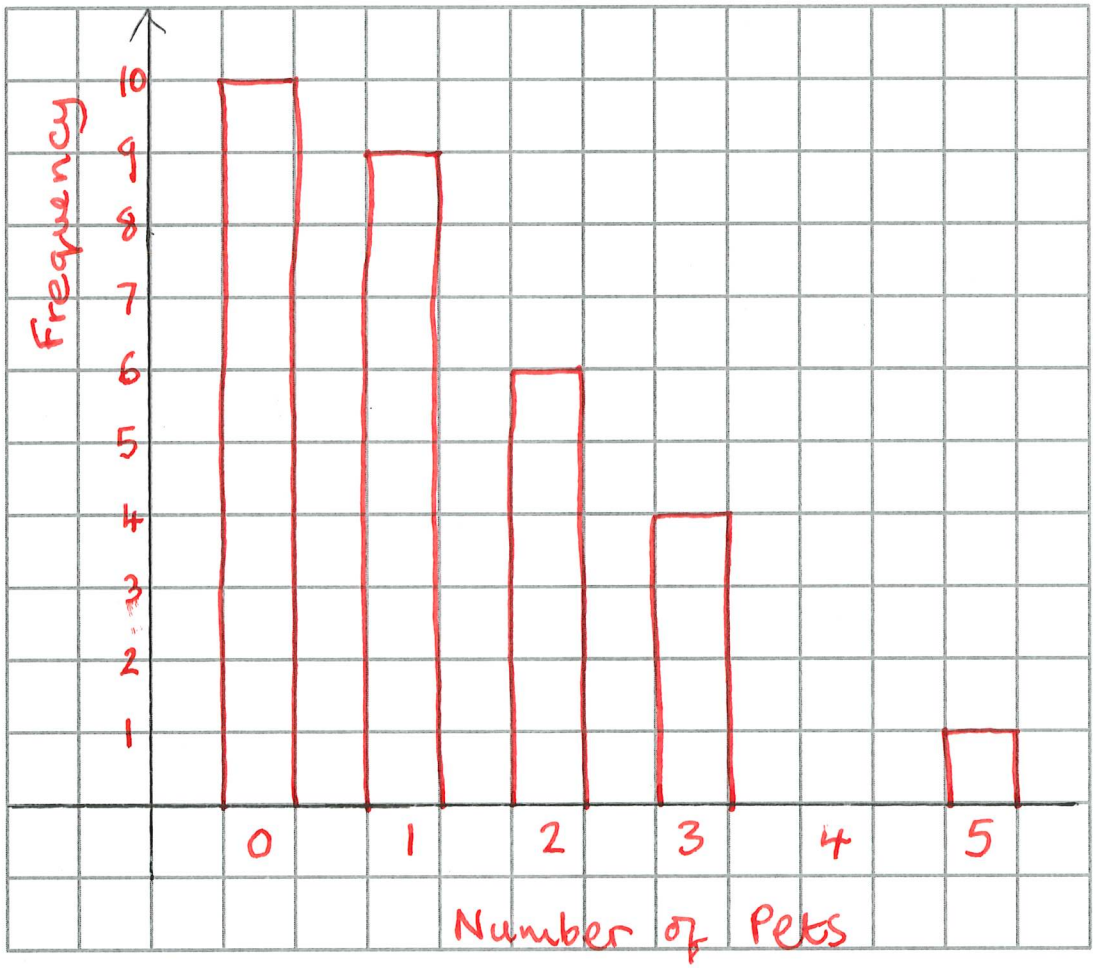
0	1	3	1	0	0	0	1	2	2
3	2	0	0	2	1	1	5	2	3
1	1	0	0	1	1	0	0	3	2

a Collate this information into the table below.

Number of Pets	Tally	Frequency
0	𝍸 𝍸	10
1	𝍸 ||||	9
2	𝍸 |	6
3	||||	4
5	|	1

(3)

b On the grid below, show this information as a bar chart.



(4)

c Write down the mode of this data.

0 pets

(1)

Q18 Joanne asked her school to write down their favourite type of take away. The results are shown in the list below.

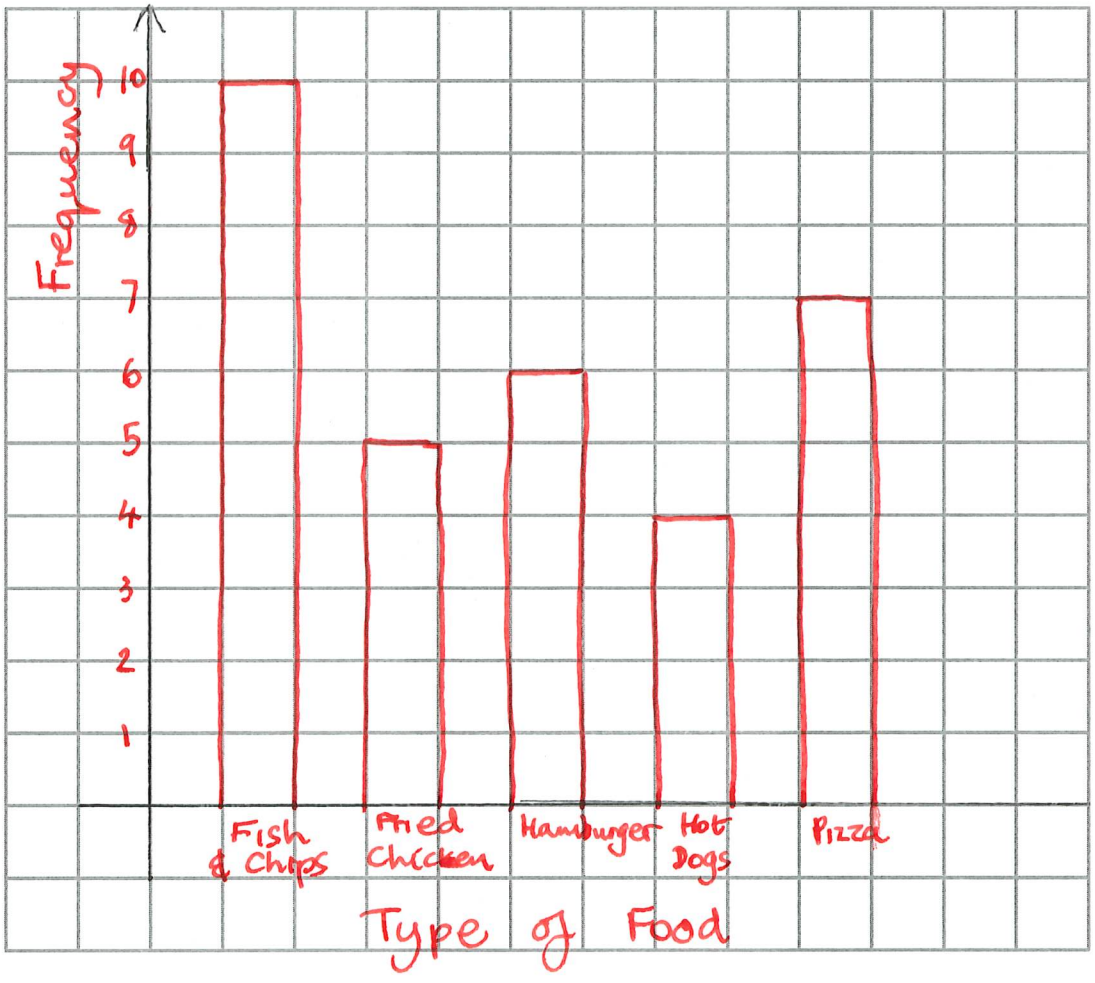
Hamburger	Fish & Chips	Pizza	Fried Chicken	Hot dogs	Fish & Chips	Hamburger	Pizza
Hamburger	Fish & Chips	Pizza	Fried Chicken	Hamburger	Fish & Chips	Fried Chicken	Fish & Chips
Fish & Chips	Fried Chicken	Hamburger	Fish & Chips	Pizza	Pizza	Hamburger	Pizza
Hot dogs	Fried Chicken	Pizza	Fish & Chips	Fish & Chips	Hot dogs	Hot dogs	Fish & Chips

a Collate this information into the table below.

Food Type	Tally	Frequency
Fish & Chips	𝍸 𝍸	10
Fried Chicken	𝍸	5
Hamburger	𝍸 I	6
Hot dogs	IIII	4
Pizza	𝍸 II	7

(3)

b On the grid below, show this information as a bar chart.



(4)

c Write down the mode of this data.

Fish and Chips

(1)

Q19 A school offered three different modern foreign languages as options. The children could only choose one option. The table below shows how many children picked each foreign language.

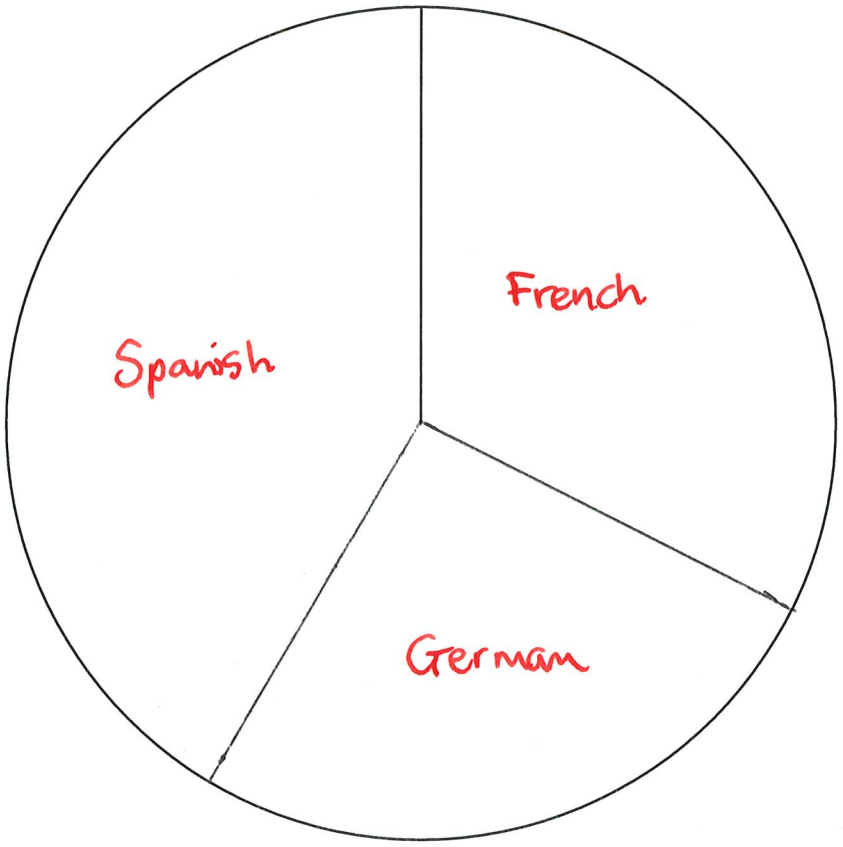
Language	Frequency
French	58
German	47
Spanish	75

2f
116°
94°
150°

Draw this information onto the pie chart below. Show all the calculations you have used to come up with your pie chart.

Total Frequency = 58 + 47 + 75 = 180

Angle per person = 360 ÷ 180 = 2°



(3)

Q20 James did a survey of how people travelled to school. The results are shown in the table below.

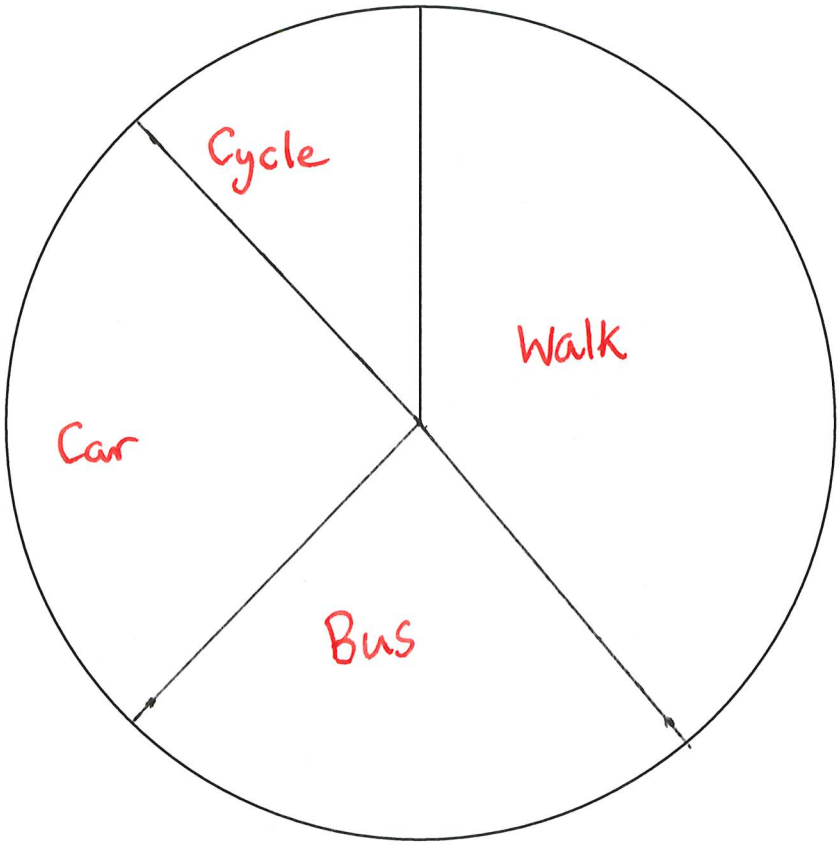
Language	Frequency
Walk	35
Bus	21
Car	23
Cycle	11

4f
140
84
92
44

Draw this information onto the pie chart below. Show all the calculations you have used to come up with your pie chart.

Total Frequency = 35 + 21 + 23 + 11 = 90

Angle per person = 360 ÷ 90 = 4



(3)

Q21 Angela, Bill, Charlotte and Dylan are planning a holiday to Cape Town in the Republic of South Africa.

Each person is taking £1200 spending money.

a The Bay Hotel costs 7,850 Rand per night and it sleeps two people. They need two rooms for six nights.

The exchange rate is £0.05 : Rand 1.00.

How much does the hotel cost in GB pounds?

7850 x 2 rooms = 15700

15700 x 6 nights = 94200

0·05 : 1 (÷20 / x20)

94200 ÷ 20 = £4710

(3)

b The flight from London Heathrow to Cape Town costs £2248 for each person.

What is the total cost of the total cost of the flight?

2248 x 4 = £8992

(2)

c The rail tickets to London cost £63.09 return for each person. The transfer from Kings Cross station to London Heathrow costs £26.30 return per person.

How much is the total cost of the rail journey?

4(63·09 + 26·30) = 4(89·39) = £357·56

(2)

d What is the total cost of the holiday, including their spending money?

4710·00
8992·00
357·56
4800·00
18859·56

1200 x 4 = 4800

£18,859·56

(3)

Q22 Abbi, Bernhard, Charlie and Daniel are planning a holiday to Perth in Australia.

Each person is taking £1500 spending money.

The Double Tree costs 225 AU$ per night and it sleeps two people. They need two rooms for eight nights.

The exchange rate is £0.50 : AU$ 1.00.

The flight from London Heathrow to Perth costs £1752 for each person.

The rail tickets to London cost £63.09 return for each person. The transfer from Kings Cross station to London Heathrow costs £26.30 return per person.

What is the total cost of the holiday, including their spending money? **You MUST show your working.**

Rail Travel $4(63.09 + 26.30) = 4(89.39) = £357.56$

Flight $4(1752) = £7008$

Hotel $2 \times 8 \times 225 = AU\$\ 3600$

Exchange Rate £0.50 : AU$ 1 (÷2 / ×2)

$3600 \div 2 = £1800$

Spend $4(1500) = £6000$

Total Cost

$357.56 + 7008 + 1800 + 6000 = £14,365.56$

£14,365.56

(8)

Q23 Billy and four friends go on holiday for six days and nights.

They stay in a cheap hotel in their resort which costs £205 per night for all five of them.

They pay a supplement for breakfast and evening meal of £48 each per day.

Their flight costs them £219 each.

They take £850 spend each.

a What is the total cost of their holiday?

205 x 6 = £1230 (Hotel)
48 x 6 = £288 (meals)
219 x 5 = £1095 (Flight)
850 x 5 = £4250 (Spend)

Total Cost = 1230 + 288 + 1095 + 4250
= 6863

£6863

(4)

Billy has saved up £1650. The friends split the cost of the holiday equally.

b Does Billy have enough money to go on holiday? Show how you know.

```
  1372.6
5|6863.0
 -5
  18
 -15
   36
  -35
    13
   -10
     30
     30
      0
```

1650 > 1372.60

Yes

(3)

Q24 Joe sets off to the cinema at 5:15pm.

He walks for 12 minutes to the bus stop where he plans to catch the 226 bus to Leeds.

Joe has to wait at the bus stop for a further 9 minutes before the bus arrives.

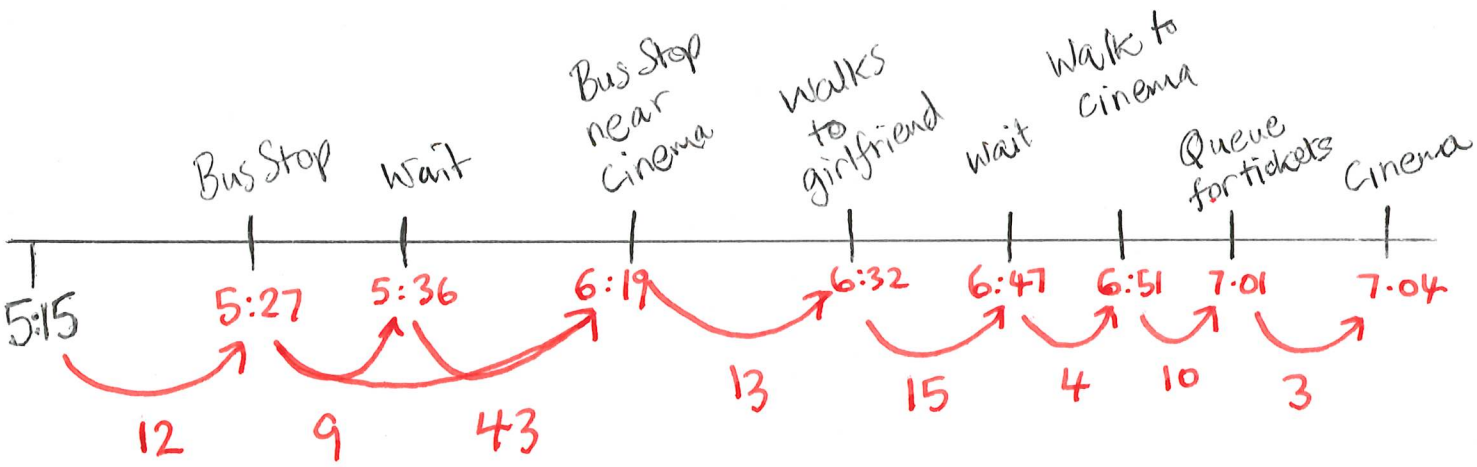
The bus travels quite slowly as it is rush hour and it takes him 43 minutes to get to the bus stop nearest the cinema, where he gets off.

Joe has to walk for 13 minutes to where he has arranged to meet his girlfriend. He waits for her to arrive for quarter of an hour.

From their meeting point, it is 4 minutes walk into the cinema. Once inside, they have to queue for ten minutes to purchase tickets. Then it is just three minutes down the corridor into their cinema where they can watch the film.

The film starts at 6:50pm.

Do they make it in time for the film to start? (You must show all your working out)



No

.....

(5)

Q25 Find the value of the unknown amount for each of the following.

a $a + 8 = 25$

$a = 25 - 8$

17 ..... (1)

b $b - 36 = 51$

$b = 51 + 36$

87 ..... (2)

c $45 - c = 25$

$-c = 25 - 45$

$= -20$

$c = 20$ ..... (2)

d $3d = 48$

$3d = 48$ ÷3

$d = 16$ ÷3

16 ..... (1)

e $\frac{e}{4} = 15$

$\frac{e}{4} = 15$ ×4

$e = 60$ ×4

60 ..... (1)

f $\frac{f}{5} + 12 = 20$

$\frac{f}{5} + 12 = 20$ −12

$\frac{f}{5} = 8$ ×5

$f = 40$ ×5

40 ..... (2)

g $\frac{2g}{5} = 4$

$\frac{2g}{5} = 4$

$2g = 20$

$g = 10$

10 ..... (2)

h $\frac{2g}{5} + 9 = 13$

$\frac{2g}{5} + 9 = 13$

$2g = 20$

$g = 10$

$\frac{2g}{5} = 4$

10 ..... (3)

Q26 Find the value of the following.

a $3x - 8 = 2x + 12$

$x = 20$

20

..... (3)

b $7x + 4 = 12x - 11$

$5x = 15$

$\therefore \quad x = 3$

3

..... (3)

c $12x - 9 = 2x + 51$

$10x = 60$

$x = 6$

6

..... (3)

d $8x - 7 = 6x + 23$

$2x = 30$

$x = 15$

15

..... (3)

e $6x - 34 = 2x + 14$

$4x = 48$

$x = 12$

12

..... (3)

Q27 **Estimate** the following.

a $\frac{\sqrt{145}+543}{5.89}$

$\frac{12 + 500}{6}$

$= \frac{512}{6}$

$85\frac{1}{3}$

(3)

b $\frac{4.94 \times 3.988}{9.83 \times 1.731}$

$\frac{5 \times 4}{10 \times 2} = \frac{1 \times 2}{2 \times 1} = 1$

1

(3)

c $\frac{41.4314 \times 83.19}{15.12^2}$

$\frac{40 \times 80}{20^2} = \frac{40 \times 80}{400}$

8

(3)

Q28 Give the answers to the following in index form.

a $3^4 \times 3^5 \times 3^5 =$ 3^{14}

3^{14}

(2)

b $7^5 \times 7^4 \times 7^{-8} =$ 7

7

(2)

c $\frac{8^{12} \times 8^{14}}{8^4 \times 8} =$ 8^{21}

8^{21}

(2)

d $(12^8)^5 =$ 12^{40}

12^{40}

(2)