Write your name here

Surname	Other names

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

Centre Number | | | | | |

Candidate Number | | | | |

Mathematics Exam 2

Grade One Diagnostic

Wednesday Form Plus Maths Lesson
Time: 2 hours 30 minutes

Paper Reference
Grade 1

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

Total Marks
127

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- 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 80
- 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.

Q1 Write down all the factors of 52.

……

(2)

Q2 Find the LCM of 56 and 84.

……

(2)

Q3 What is $9^2 - 4^2 + 3^3$

……

(2)

Q4 Write down the value of $\sqrt{196}$.

……

(1)

Q5 Write down all the prime numbers between 70 and 80.

……

(2)

Q6 Write eight thousand and twelve in figures.

……

(1)

Q7 Write 17,014 in words.

_____

_____

(1)

Q8 a $6109 \times 10{,}000$

……

(1)

b $845 \div 100$

……

(1)

Q9 Put the following numbers into ascending order

8 3.1132 0.3491 0.34661 12.6645 19

……

(1)

Q10 Put the following numbers into order.

2 -1 3.465 -0.85 -6.56 -7

……

(1)

Q11 Write the value of the following:

a $17 - 23 =$

b $-16 - 17 =$

c $-11 - (-13) =$

d $-17 + 41 =$

e $-16 + (-12) =$

(5)

Q12 Write the value of the following:

a $-7 \times 8 =$

b $8 \times (-2) =$

c $-15 \div (-3) =$

d $-12 \div 3 =$

e $28 \div (-2) =$

(5)

Q13 The temperature in Perth is 17°C colder than it is in Newcastle.

In Newcastle, the temperature is 5°C.

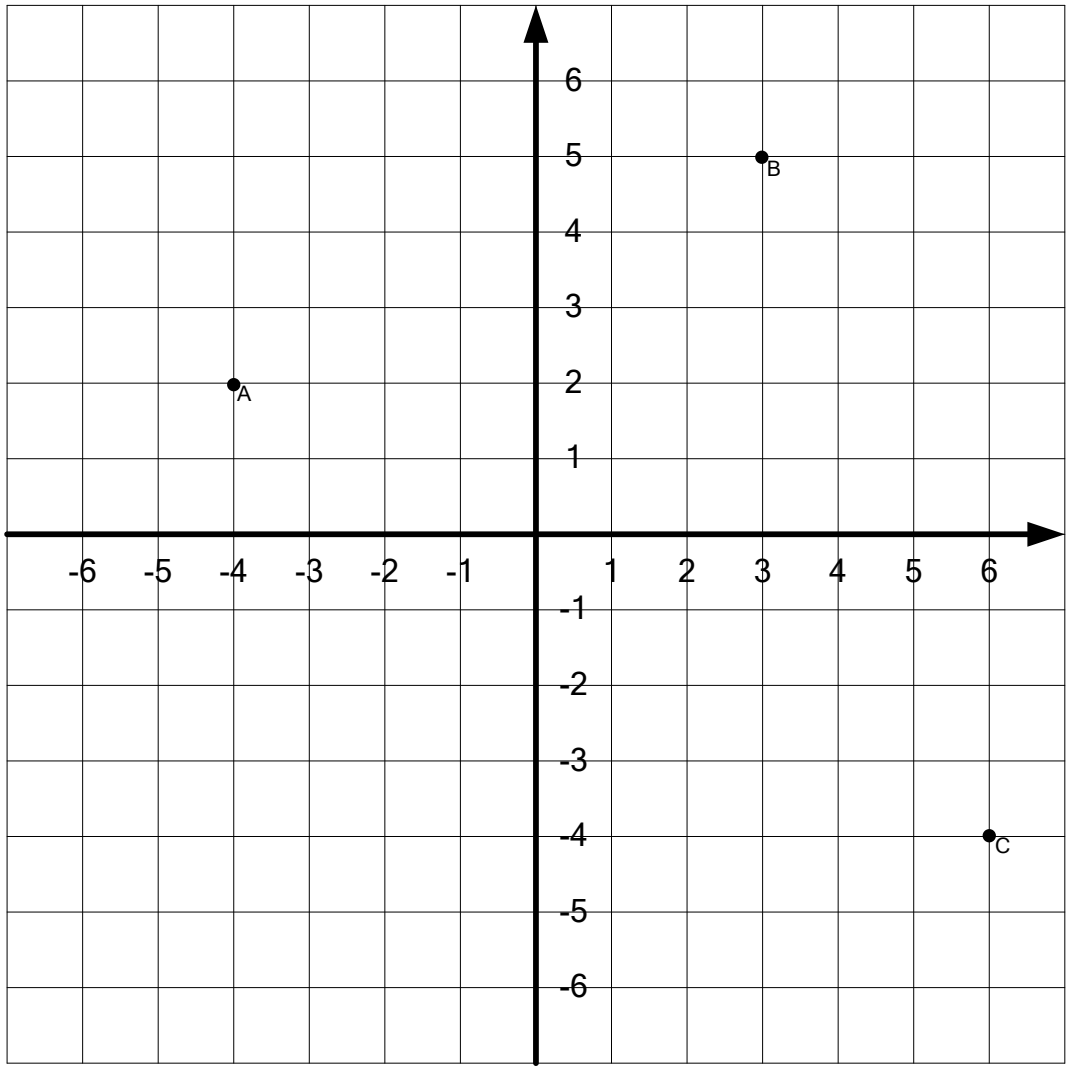
What is the temperature in Perth?

.....

(2)

Q14 The co-ordinates of the vertices of a shape shown on the grid below.

a Write down the co-ordinates below.



A: _____

B: _____

C: _____

(3)

b A fourth point should be on the grid as well at the point (-2,-4).

Mark the point with an **X**.

(1)

Q15 A line runs from (6, 14) to (8, 23).

Bill needs to mark the midpoint of the line.

At what co-ordinates should Bill mark the midpoint?

…….

(2)

Q16 Below is an arithmetic sequence of numbers.

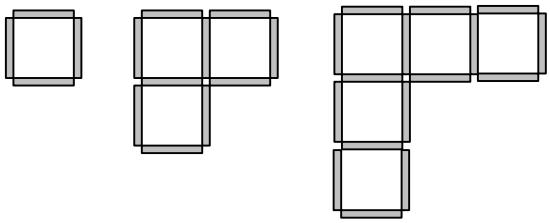
Write down the values of the missing numbers.

_____ , 43, 49, 55, 61, _____ , _____

(3)

Q17 Look at the pattern below.

Draw the next next "term" in this sequence.



(2)

Q18 Look at the sequence of numbers below.

98, 89, 80, 71, 62

a Write a rule explaining how this sequence changes from term to term.

_____

_____

(1)

b What would be the tenth term in this sequence?

……

(1)

c Is the number 44 in this sequence? Explain how you know.

_____

_____

_____

(1)

Q19 Simplify the following expressions

a $6 \times q \times q =$

b $5a + 4b + a - 5b =$

c $4(5f - 7) =$

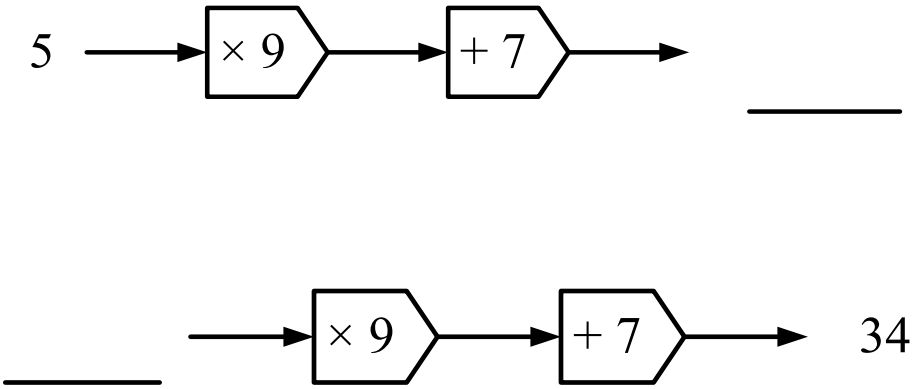
d $t^2 + 8t^2 + 11t - 3t^2 =$

e $5x(6x + 2y) =$

(5)

Q20 Look at the function machines below.

a Work out the missing quantities.



(2)

b Write an equation that would perform the same function if we put **x** into the input.

(2)

Q21 Solve the equation

a $x + 7 = 30$

b $5x - 12 = 38$

(3)

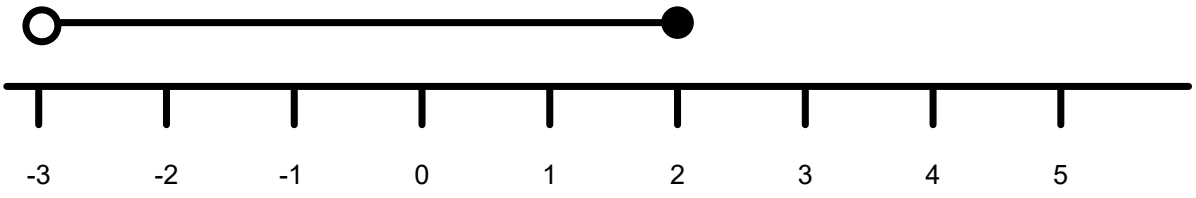
Q22 The variable x is an integer within the range $9 \leq x < 15$.

Write down all the possible values of x.

.....

(2)

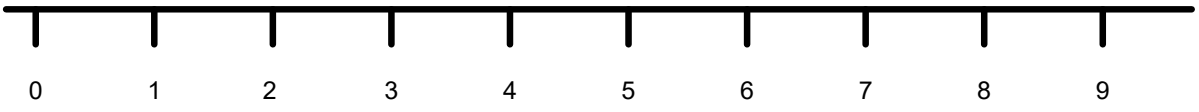
Q23 State the inequalities shown on the number lines below.



.....

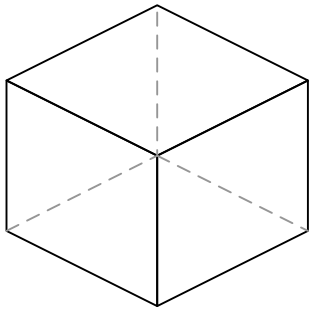
(2)

Q24 Draw the inequality $4 \leq x < 5$ onto the number line below.



(2)

Q25 Look at the picture of the 3D shape below.



a What is the name of the shape?

……

(1)

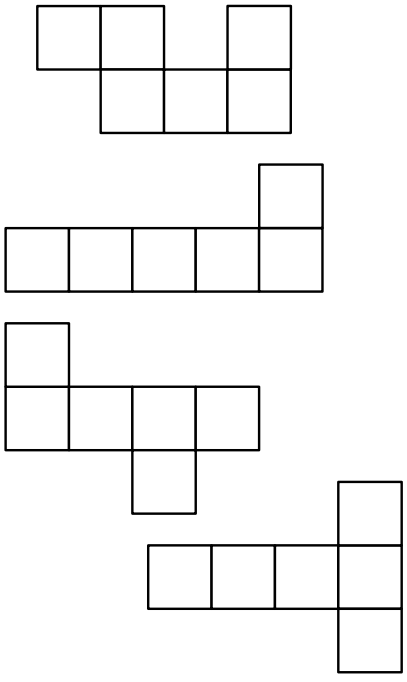
b Complete the following sentence.

The shape above has _____ faces, _____ edges and _____ vertices.

(2)

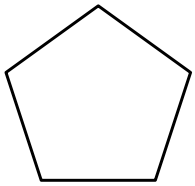
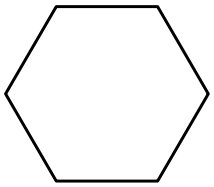
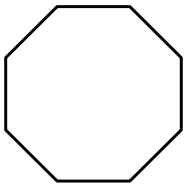
Q26 Below are some nets of cubes.

Tick nets that will work to form a cube.



(2)

Q27 Name each of the following shapes.

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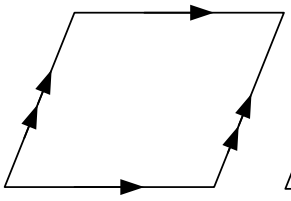
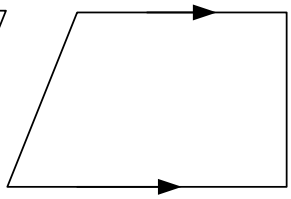
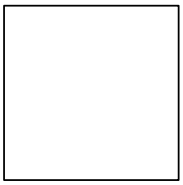
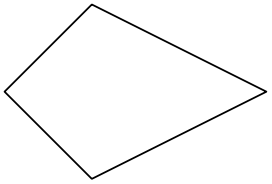
(4)

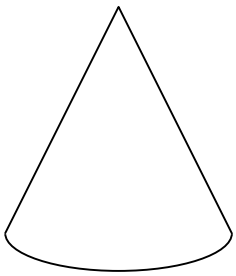
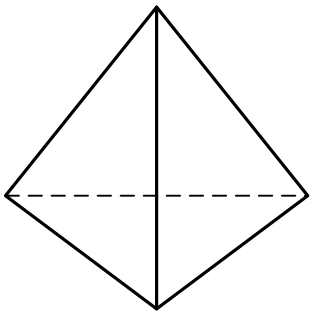
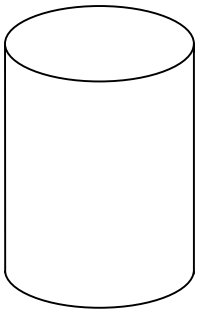
Q28 Name each of the following quadrilaterals.

....

(4)

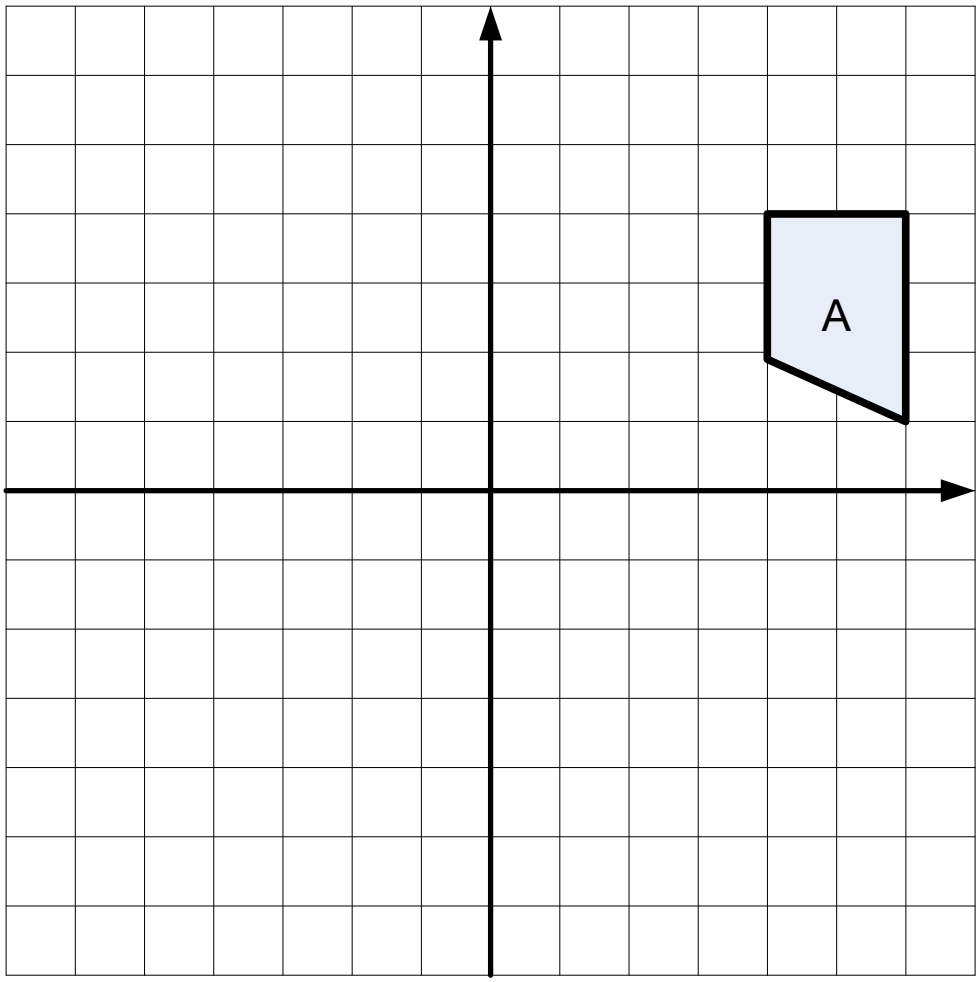
Q29 Name each of the solid shapes below.

....

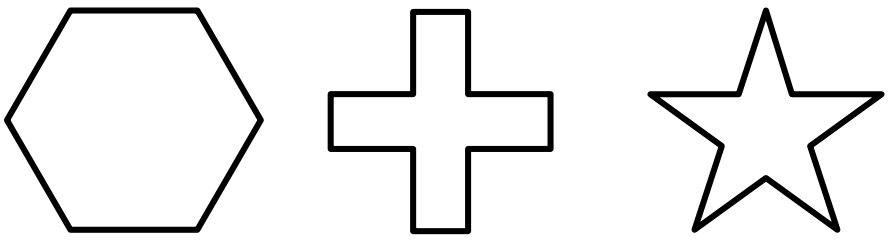
(3)

Q30 On the diagram below, reflect the shape in the y axis.



(2)

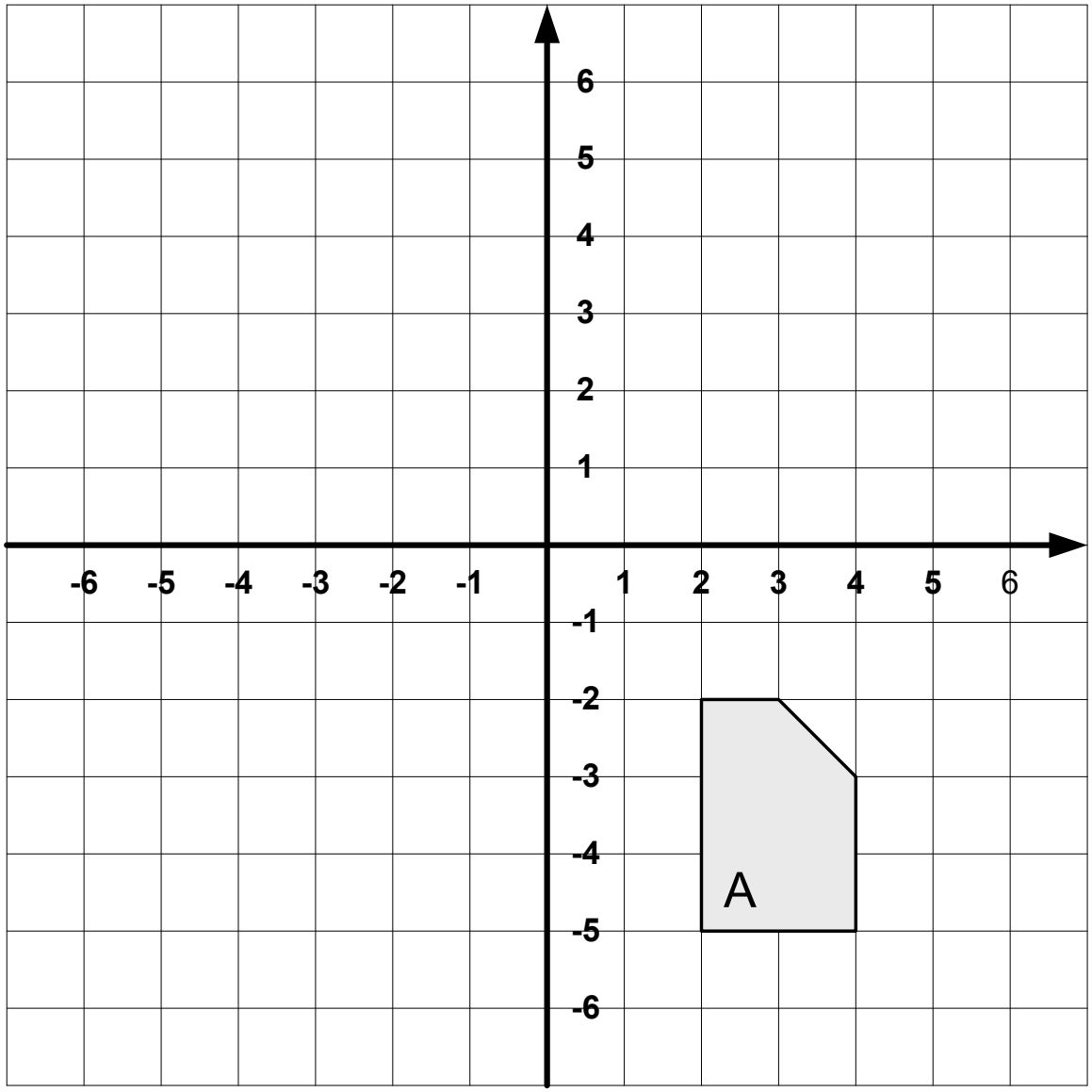
Q31 How many orders of rotational symmetry do each of the shapes below have?



....

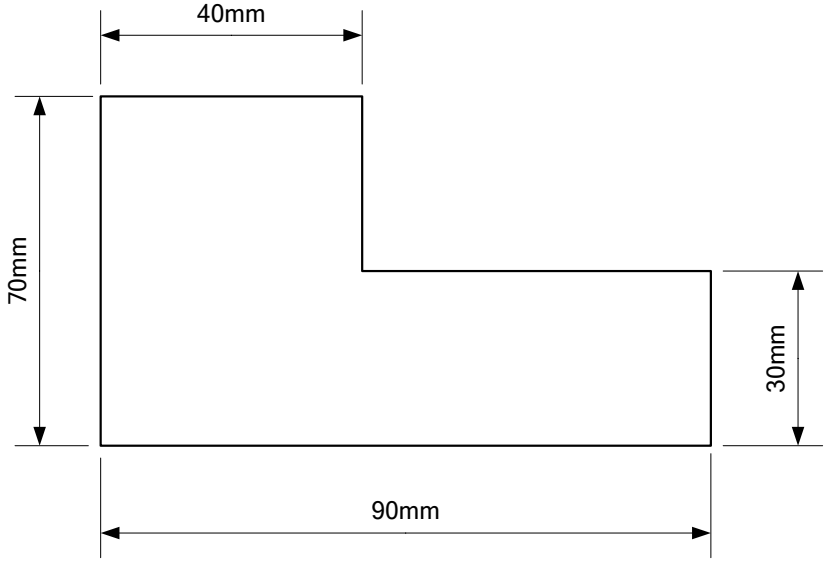
(3)

Q32 On the diagram below, rotate Shape A 90° clockwise about point (0, -1).



(3)

Q33 Below is a shape.



a What is the perimeter of the shape?

…….. mm

(3)

b What is the area of the shape?

…….. mm^2

(3)

Q34 Bill has an appointment for an interview at 11:30 am.

Bill is ready to leave the house 35 minutes after he has woken up.

It takes Bill three quarters of an hour to walk from his house to the bus stop.

Bill travels on the bus for 20 minutes from the bus stop to the railway station where he can jump straight onto his train.

The railway journey takes Bill 25 minutes.

Once he has got off the train, it is just a five minutes' walk from the railway station to his perspective workplace.

He likes to arrive quarter of an hour before his interview.

The night before his interview, Bill has to set his alarm.

What is the latest time he should set his alarm clock to, in order to arrive for his interview when he wants?

…….

(4)

Q35 Write down the most sensible unit to use for the following:

a Weight bag of sugar

…….

(1)

a Distance from London to Brighton

…….

(1)

a Amount of fluid in a syringe

…….

(1)

Q36 Below is a list of the number of minutes that a group of passengers had to wait for a bus.

16 3 8 4 13 5 5 3 5 4 12

a Calculate the median time that the passengers had to wait.

……

(2)

b Calculate the mode time that the passengers had to wait.

……..

(1)

c Calculate the mean time that the passengers had to wait.

……

(3)

Q37 Gabriella did a study on the favourite TV programmes of the people in his class.

The results are listed below.

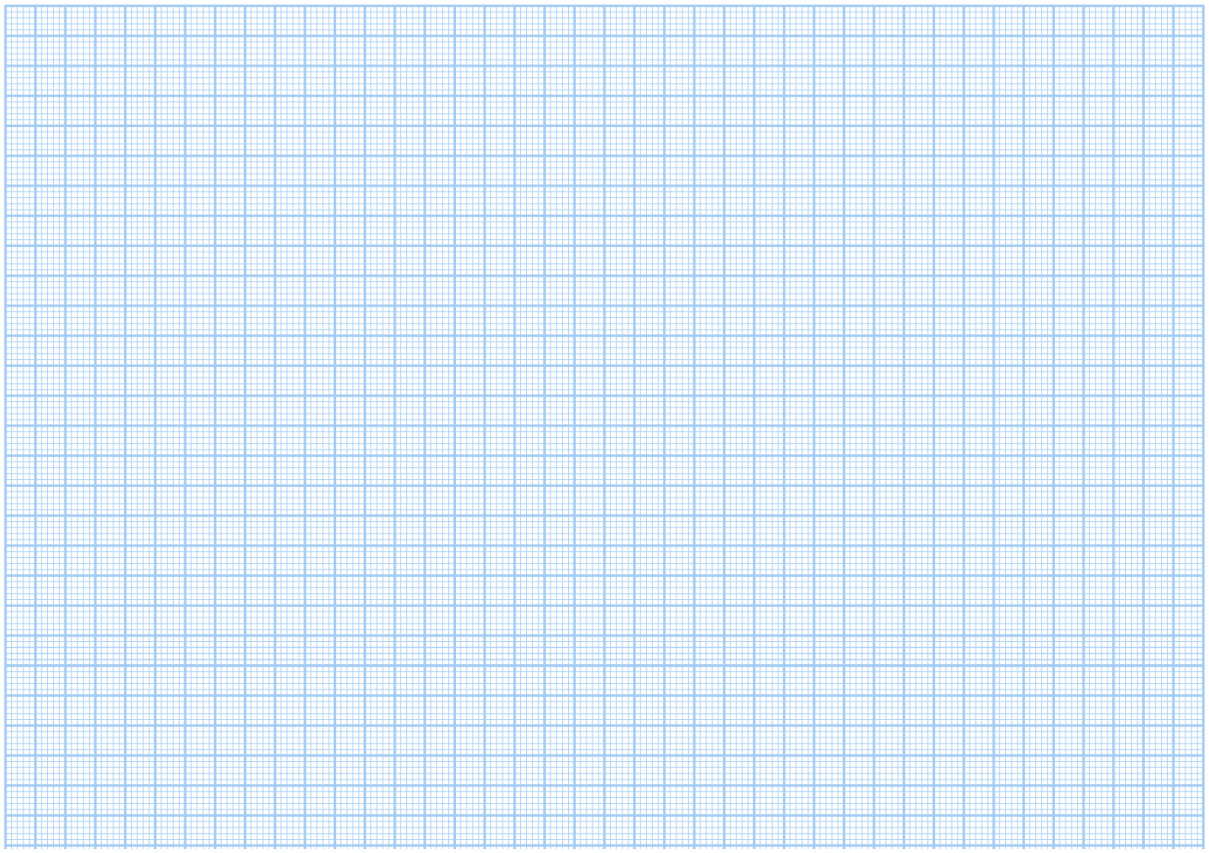
Simpsons	Call of Duty	Sat. Kitchen	Simpsons	Cheers	Call of Duty	Call of Duty
Call of Duty	Simpsons	Sat. Kitchen	Sat. Kitchen	Simpsons	Simpsons	Cheers
Cheers	Teletubbies	Cheers	Simpsons	Call of Duty	Cheers	Simpsons
Cheers	Call of Duty	Sat. Kitchen	Simpsons	Sat. Kitchen	Simpsons	Call of Duty

a Fill in the tally chart below.

Favourite Colour	Tally	Frequency or Total

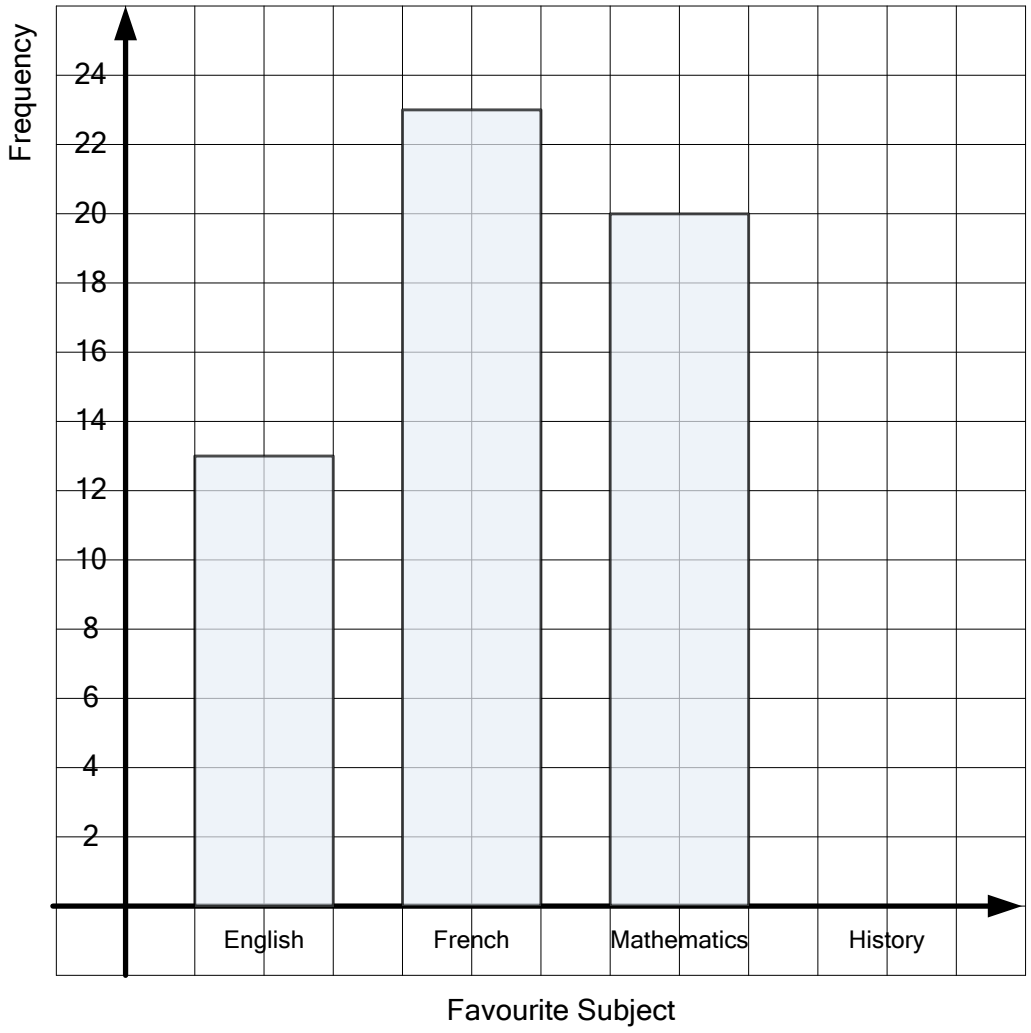
(2)

b Draw a bar chart on the graph paper below showing the information that Bill collected.



(4)

Q38 Joanne drew another bar chart.



a Twenty-one people liked history.

Draw this information onto the bar chart.

(2)

b Which was the most popular lesson?

……

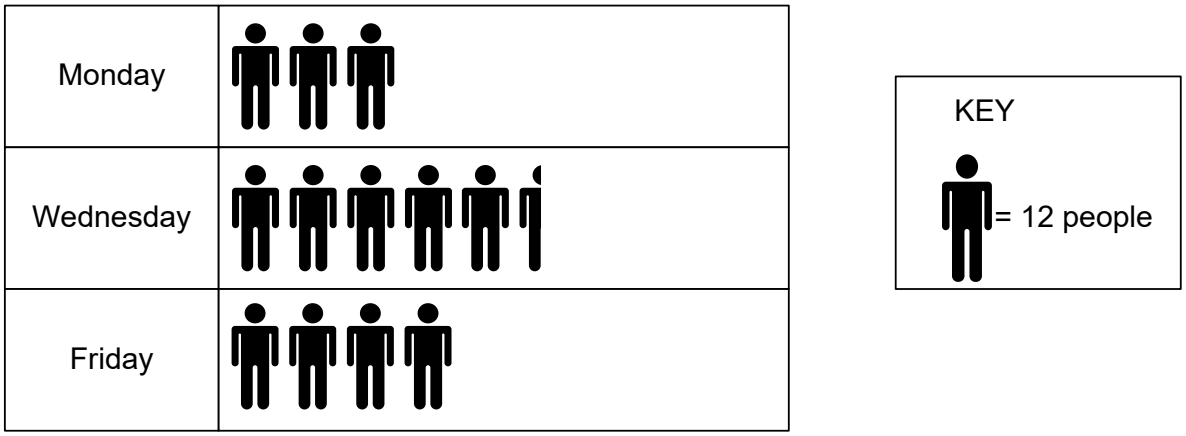
(1)

c How many more people liked French than English?

……

(1)

Q39 The pictogram below shows the different number of people visiting a shop on library in the first hour of opening on Monday, Wednesday and Friday last week.



a How many people visited the library on Wednesday?

……

(1)

b How many people visited the library altogether?

……

(1)

c What was the mean average number of people that visited the library?

……

(2)

Q40 A box of sweets had 60 chocolate eclairs, 35 Double Deckers and 55 Twix sweets left.

Write this as a ratio in its simplest form.

……

(2)

Q41 Put the following numbers in ascending order.

$$\frac{3}{5} \qquad \frac{2}{6} \qquad \frac{3}{8}$$

……

(2)

Q42 Simplify the following fractions

a $\frac{15}{24} =$

(1)

b $\frac{6}{20} =$

(1)

c $\frac{21}{35} =$

(1)

Q43 Convert $\frac{3}{5}$ into a percentage

……

(1)

Q44 Write $\frac{5}{100}$ as a decimal

……

(1)

Q45 Put the following numbers in order

$\frac{7}{9}$ 68% 0.73 $\frac{5}{8}$

……

(2)