First Name	
Last Name	
Date	
Total Marks	/ 100 marks

MathsMadeEasy

GCSE Mathematics

Non Calculator
Foundation Tier
Free Practice Set 1
1 hour 30 minutes

Dedicated to my Father, Cyril (1928-2008)

Answers at:
http://www.mathsmadeeasy.co.uk/gcsemathspapers-free.htm

Instructions
Write your name and other details in the boxes above.
Answer all the questions
Take π to be 3.142

Information
Marks are shown in brackets for each question (2)
Calculators may not be used

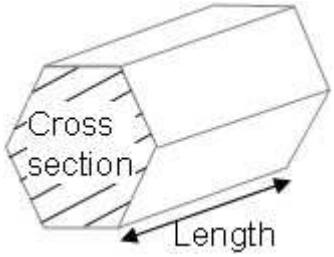
Advice
Don't spend too long on one question
Show all your working in calculations for full marks
You will get marks for method even if your answer is incorrect
Leave a question until later it you cannot answer it

Materials needed for examination

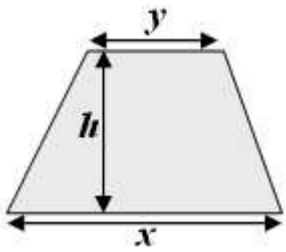
Ruler marked in centimetres and millimetres,
protractor, compasses, pen, pencil, rubber
Tracing paper may be used

Formulae Sheet Foundation Tier

Volume of prism = area of cross section × length



Area of trapezium = $\frac{1}{2}(x + y)h$



Question	Type of question	Marks
1	Line of Symmetry, rotational symmetry	2
2	Number patterns	6
3	Number operations	4
4	Estimation	3
5	Measurements & imperial units	4
6	Fraction, %, decimals	6
7	Number	6
8	Transformation, perimeter	4
9	Algebra – expression, equation	3
10	Tangent, volumes, angles	4
11	Plane symmetry, shapes	3
12	Probability	4
13	Word formula	2
14	VAT calculation	3
15	Two way table	3
16	Formula substitution	4
17	Number - Multiplication	3
18	Algebra – simplify, expand, solve	7
19	Angles	4
20	Travel graph	4
21	Ratio	2
22	Fractions	4
23	Areas triangle, circle, volume	6
24	Mode, Median, Mean, Range	5
25	3D Net	4

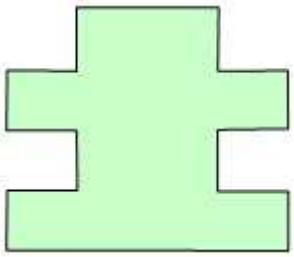
Answer ALL questions.

Write your answers in the spaces provided.
Do NOT use a Calculator

You must write down all stages in your working.

1. **a)** Draw a line of symmetry on the shape below

(1)



b) What is the order of rotational symmetry for the shape

……..... **(1)**

2. A number pattern is shown below

Pattern number	Pattern	Total
1	6 =	6
2	6 + 5 =	11
3	6 + 5 + 5 =	16
4		
5		

a) Complete the table

(2)

b) What is the expression in terms of *n*, for the total in pattern number *n*.

…….....

(2)

c) Here is another sequence. Complete the missing terms

…….. 23 17 11 5 …….. ……..

(2)

3. What is

a) 8.6 – 2.7

…….....

(1)

b) –5.3 –1.7

…….....

(1)

c) 5 × 3 + 4

…….....

(1)

d) Arrange these numbers from *smallest to largest*

5 – 1 – 0.9 – 4 1 0.8

…….....

(1)

4. a**)** Estimate the answer to: 14.1 × 99
Show your working.

.....

(1)

b) Estimate : $\frac{14.9 \times 40.1}{9.7 \times 3.1}$

.....

(2)

5. **a)** What is two hundred metres in kilometres

.....km

(1)

b) What is six centimetre in metres

.....m

(1)

c) What is 425 grams in kilograms

.....kilograms

(1)

d) What is 2.866 grams correct to 2 decimal places?

.....grams

(1)

6. **a)** Complete the table below

Fraction	%	Decimal
¾		
	30%	
		0.25

(3)

b) What is 24% as a fraction giving your answer in its simplest form.

.....

(1)

c) Put these values in order starting with the smallest:

0.33 32% $\frac{3}{10}$

.....

(1)

d) What is 80% of 80

.....

(1)

7. An oil tanker weighs 287 880 tons.

a) What is 287 880 in words.

…….....

(1)

b) What is 287 880 correct to three significant figures.

.....

(1)

c) The engines on the tanker needed 100 gallons of fuel every minute.
How many gallons would they use in an hour at this rate?

.....

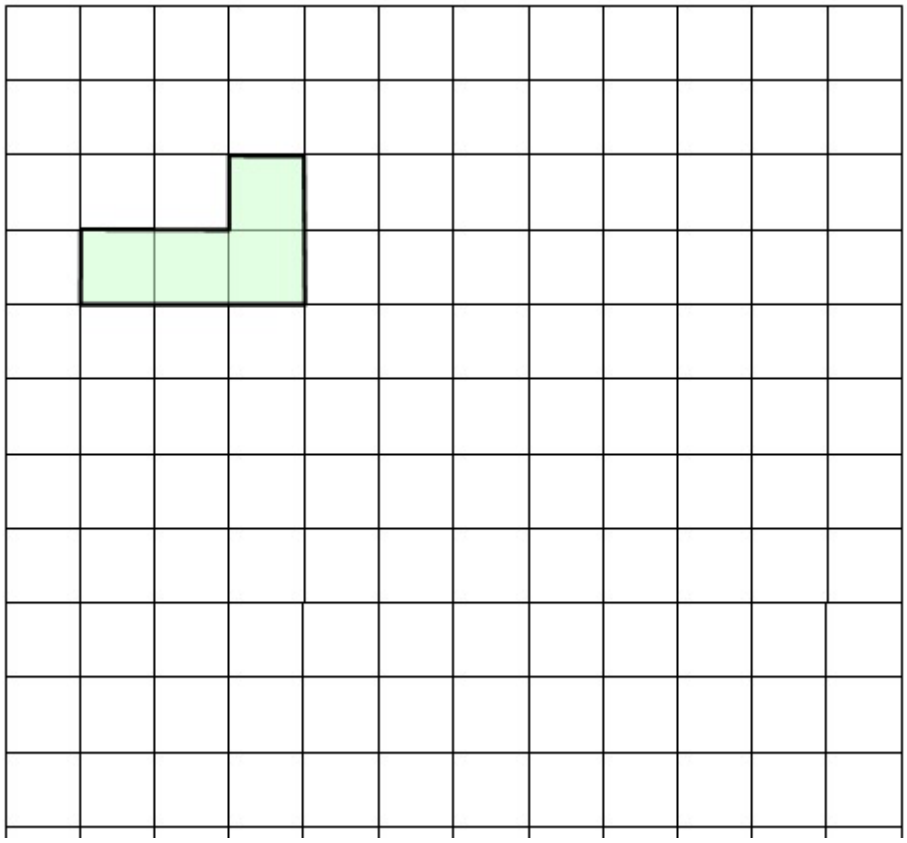
(2)

d) The tanker travelled a distance of 234 miles in 9 hours.
What was its speed in miles per hour**.**

.....mph

(2)

8. **a)** Enlarge the shape shown on the centimetre grid below by a scale factor of 3



(2)

b) What is the *PERIMETER* of the enlarged shade you have drawn?

…….....

(2)

9 Sylvia is x years old.

Her husband Cyril is 4 years older.

a) Write down an expression, in terms of x, for Cyril's age.

.....

(1)

The total age of both Sylvia and Cyril is 144 years.

b) Write an equation and solve it to find the value of x (Sylvia's age).

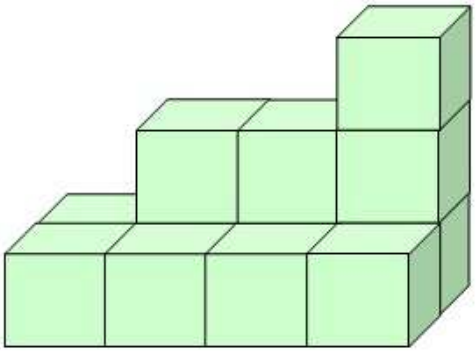
.....

(2)

10. a**)** Sketch a circle and add a tangent to it in the space below.

(1)

Several centimetre cubes have been stacked as shown



b) How many *more cubes* are needed to make a volume of 16 cm^3

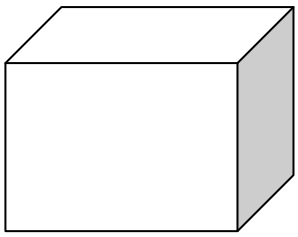
…….....

(2)

c) Sketch an obtuse angle in the space below.

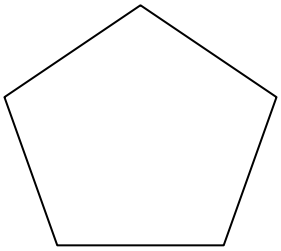
(1)

11. **a)** Draw a *plane* of symmetry on the 3-D shape shown



(1)

b) What is the mathematical name for the regular shape below**.**



.....

(1)

c) Draw all the lines of symmetry on the shape above.
How many are there?

.....

(1)

12. **a)** As a *fraction* what is the probability of getting a number *more than* 2 when you throw a 6 sided dice.

.....

(1)

b) Mark the probability scale to show the probability that it will rain ever day during the school summer holidays

(1)

c) As a *percentage* what is the probability of getting a tail when you toss a fair coin

.....

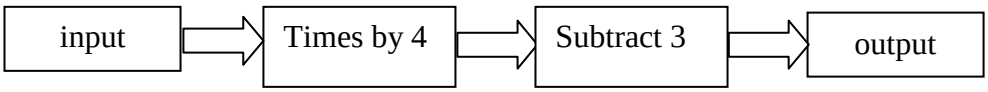
(1)

d) The probability that it will rain in August is 0.7.
What is the probability that it will NOT rain.

.....

(1)

13. Here is a rule



a) If the input is 3 what is the output

.....

(1)

b) If the output is 29 what is the input

.....

(1)

14. An X-Box cost £240 excluding VAT.
VAT on the X-box is 17 ½ %

How much does the X-box cost including VAT?

£.....

(3)

15. A two way table shows the favourite TV programs for 40 adults

	Men	Women	Total
East Enders	9		
Big Brother		10	
Neighbours	5	2	
Total		19	40

Fill in the missing values

(3)

16. The formula $v = u + at$ gives the final velocity of an object as it accelerates.

a Find the value of v when:

i $u = 20$, $a = 5$ and $t = 9$

.....

(2)

ii if $v = 35$ **,** $a = 4$ and $t = 5$ find u

.....

(2)

17. What is 243 × 34

.....

(3)

18. **a)** Simplify:

i) a + 3 + a + a

.....
(1)

ii) 6a × 2a

.....
(1)

b) Solve
4t – 6 = 14

t = ...
(1)

c) Expand and simplify:

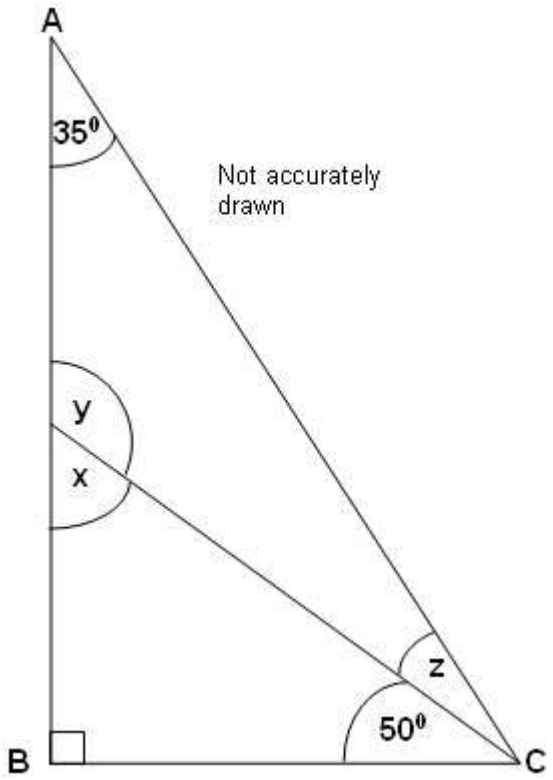
$5(x + y) + 3(4x – 2y)$

…….....
(2)

d) Solve
$7(x + 2) = 5x + 21$

x = ...
(2)

19. The diagram shows triangle ABC.



Work out the sizes of angles *x*, *y* and z

x = …….° **(1)**

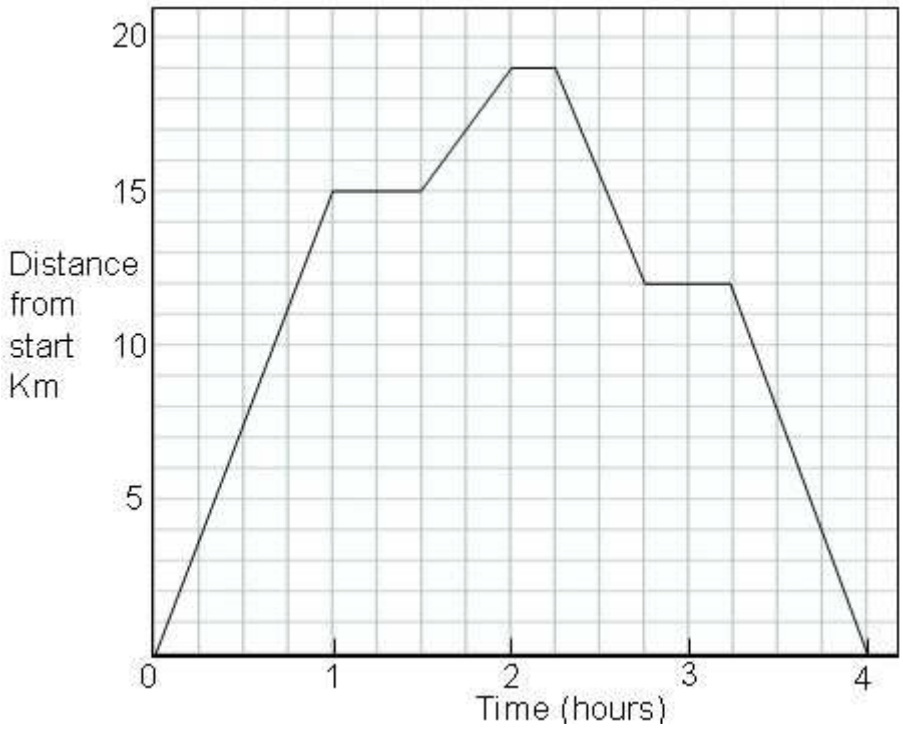
Explain how you got your answer

…… **(1)**

y = …….° **(1)**

z = …….° **(1)**

20. The graph shows how far Jane travelled on her bike ride.



a) How many times did she stop for a rest?

.....
(1)

b) After 2 hours how far had she travelled?.

.....
(1)

c) Calculate Jane's average speed for the last 45 minutes of her ride.
Give your answer in kilometres per hour.

.....kph
(2)

21. David, Jane and Matthew shared out £1000 between them in the ratio 4 : 6 : 10

How much did they each get.

£…..... and £..... and £.....

(2)

22. What is.

a) $3\frac{1}{2} + 2\frac{3}{5}$ Write your answer as a mixed number.

.....

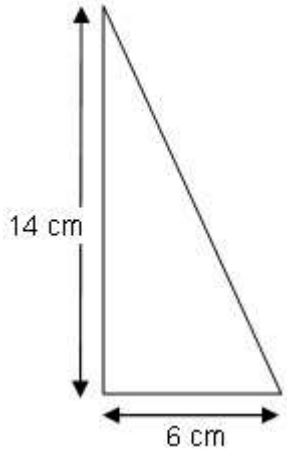
(2)

b) $3\frac{1}{2} \times 2\frac{3}{5}$ Write your answer as a mixed number.

.....

(2)

23. **a)** Calculate the area of this triangle.



.....cm^2

(2)

b) i Calculate the area of a circle with diameter 20 cm.

.....cm^2

(2)

ii This circle is the cross-section of a cylinder of length 10 cm.
Calculate the volume of the cylinder.

.....cm^3

(2)

24. Seven students had a Maths and English test. Here are the scores out of 10.

Student	Maths	English
David	7	7
Jane	8	5
Laura	8	6
Stuart	6	8
Matthew	5	6
Pete	6	7
Vicky	8	3

a) What is the Mode of these score for Maths

.....
(1)

b) What is the Range of the English scores

.....
(1)

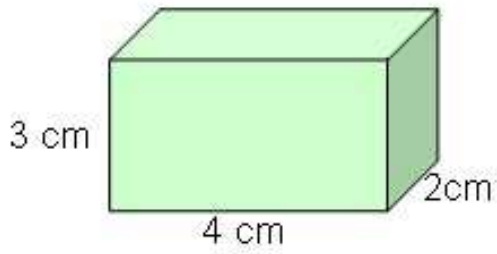
c) What is the Median score for Maths

.....
(1)

d) What is the Mean score for English

.....
(2)

25. **a)** Using a ruler draw an *accurate* net of this cuboid



(2)

b) Cyril wants to paint the four outside walls and the top of the cuboid, but *not* the base.
If one tin of model paint covers $11cm^2$ how many tins of paint does Cyril need?
Use the net you drew in the first part of this question to help you answer.

.....tins **(2)**

TOTAL FOR PAPER: 100 MARKS
END