Surname	Centre Number	Candidate Number
First name(s)		0

Examiner only

REVISE .wales

GCSE

R.WM-MNF-U2-002

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MOCK PAPER B

MATHEMATICS AND NUMERACY (DOUBLE AWARD)

UNIT 2: NON-CALCULATOR FOUNDATION TIER

1 hour 30 minutes

ADDITIONAL MATERIALS

The use of a calculator is not permitted in this examination.

A ruler, protractor and a pair of compasses may be required.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen. Do not use gel pen or correction fluid.

You may use a pencil for graphs and diagrams only.

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **all** the questions in the spaces provided.

If you run out of space, use the additional page at the back of the booklet. Question numbers must be given for all work written on the additional page.

Take π as $3{\cdot}14$.

INFORMATION FOR CANDIDATES

You should give details of your method of solution when appropriate.

Unless stated, diagrams are not drawn to scale.

Scale drawing solutions will not be acceptable where you are asked to calculate.

The number of marks is given in brackets at the end of each question or part-question.

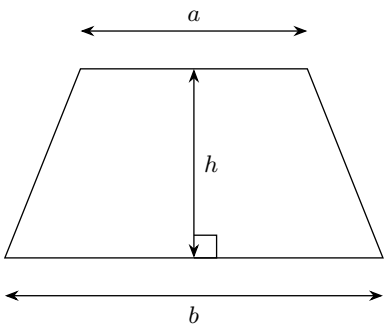
In question **<OCW>**, the assessment will take into account the quality of your linguistic and mathematical organisation, communication and accuracy in writing.

For Examiner's use only		
Question	**Maximum Mark**	**Mark Awarded**
1.	**5**	
2.	**7**	
3.	**6**	
4.	**7**	
5.	**8**	
6.	**7**	
7.	**8**	
8.	**9**	
9.	**8**	
Total	**65**	

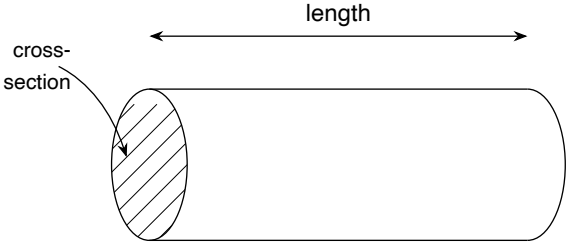
RWMMNFU2 02

Formula List – FOUNDATION TIER

Area of trapezium $= \frac{1}{2}(a+b)h$

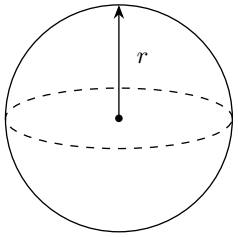


Volume of prism = area of cross-section $\times$ length



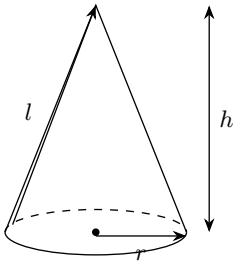
Volume of sphere $= \frac{4}{3}\pi r^3$

Surface area of sphere $= 4\pi r^2$



Volume of cone $= \frac{1}{3}\pi r^2 h$

Curved surface area of cone $= \pi r l$

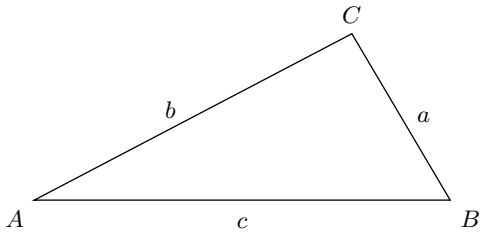


In any triangle ABC

Sine rule $\dfrac{a}{\sin A} = \dfrac{b}{\sin B} = \dfrac{c}{\sin C}$

Cosine rule $a^2 = b^2 + c^2 - 2bc\cos A$

Area of triangle $= \frac{1}{2}ab\sin C$



The Quadratic Equation

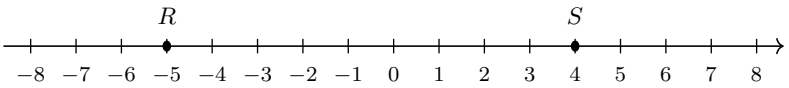
The solutions of $ax^2 + bx + c = 0$ where $a \neq 0$ are given by $x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Annual Equivalent Rate (AER)

AER, as a decimal, is calculated using the formula $\left(1 + \frac{i}{n}\right)^n - 1$, where i is the nominal interest rate per annum as a decimal and n is the number of compounding periods per annum.

1.

(a) The number line below shows the integers from -8 to 8. [2]



Calculate the value of $S - R$.

Answer = ...

(b) Write down the value of the digit 5 in the number $254{,}031$. [1]

Answer = ...

(c) Round $47{,}382$ to the nearest $1{,}000$. [2]

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Answer = ...

2.

(a) Work out $\frac{1}{2} - \frac{1}{5}$. [2]

Give your answer in its simplest form.

Answer = ...

(b) Work out $0{\cdot}5 \times 0{\cdot}7$. [3]

You must show your working.

Answer = ...

(c) Five values are shown in the box below. [2]

$0{\cdot}3$	$\frac{3}{4}$	$\frac{1}{2}$	$0{\cdot}65$	$\frac{1}{4}$

Write these five values in order, starting with the smallest.

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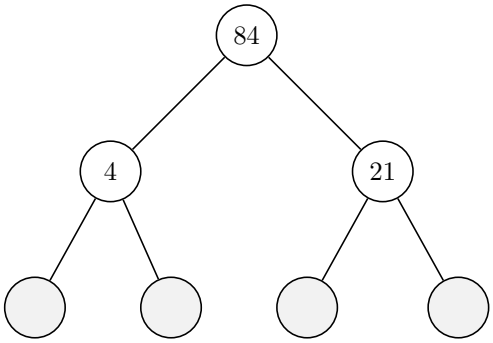
Smallest $\rightarrow$ Largest = ...

3.

(a) Complete the factor tree below to write 84 as a product of its prime factors. [2]



Write 84 as a product of prime factors below.

$84 =$ .....

(b) Find the lowest common multiple (LCM) of 6 and 9. [2]

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LCM = ...

(c) Find the highest common factor (HCF) of 20 and 30. [2]

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HCF = ...

4.

(a) When $x = 4$ and $y = -3$, find the value of $2x - 5y$. [2]

Answer = ...

(b) Simplify the expression below. [2]

$$7p + 2q - 3p + 5q$$

Answer = ...

(c) Expand $3(2y + 5)$. [1]

Answer = ...

(d) Factorise fully $8m - 12$. [2]

Answer = ...

5. *In this question, you will be assessed on the quality of your organisation, communication and accuracy in writing.*

The diagram below shows the first three patterns in a sequence made from grey square tiles.

Pattern 1 Pattern 2 Pattern 3

Pattern 1 uses 3 tiles. Pattern 2 uses 8 tiles. Pattern 3 uses 13 tiles.

A larger pattern in this sequence uses *exactly* 73 tiles.

Determine which pattern number uses 73 tiles.
Show your method clearly. Your working should include a rule for the number of tiles in Pattern n, and an equation that you solve to find the pattern number. [6 + 2 OCW]

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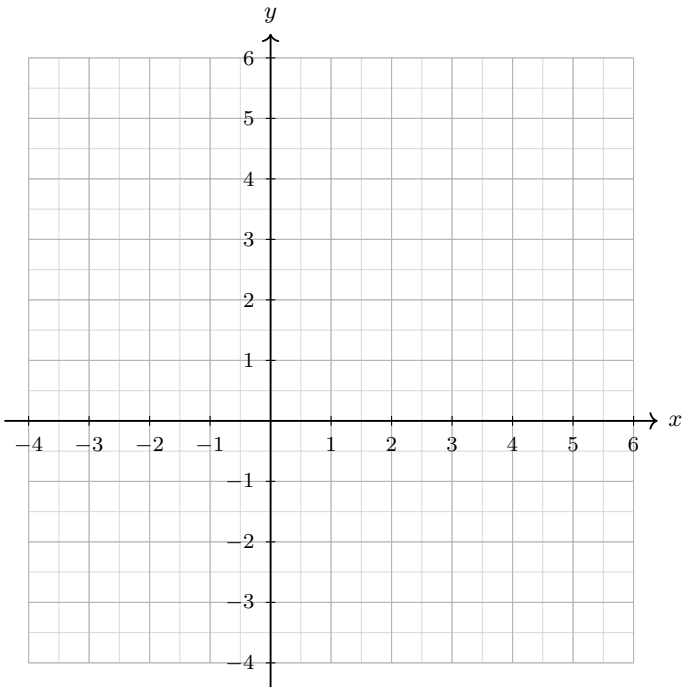
Pattern number = ...

6. Use the grid below to answer all parts of this question. The grid shows the x-axis from -4 to 6 and the y-axis from -4 to 6.



(a) Plot the points $C(-2, 4)$ and $D(5, -3)$ on the grid above. [2]
Label each point clearly.

(b) On the same grid above, draw the line with equation $y = -x + 3$ for values of x from -2 to 5. [3]
Show your table of values in the space below.

(c) Write down the gradient of the line $y = -x + 3$. [2]

Gradient = ...

7.

(a) The diagram below shows four angles meeting at a point. The diagram is not drawn to scale. [3]

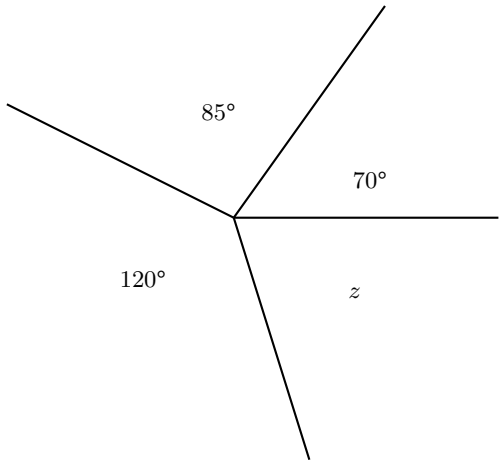


Diagram not drawn to scale

Calculate the size of angle z. Give a reason for your answer.

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$z =$ . . . . . °

(b) The diagram below shows a regular pentagon. The diagram is not drawn to scale. [3]

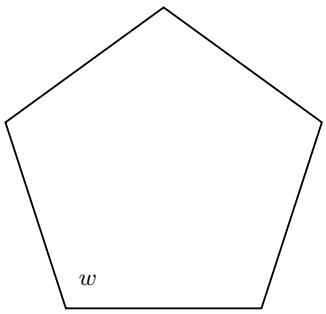


Diagram not drawn to scale

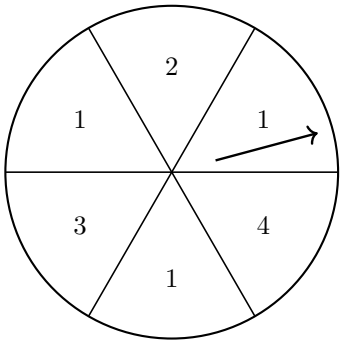
Calculate the size of one interior angle, w, of the regular pentagon.

$w =$ ..... °

(c) A different regular polygon has 12 sides. [2]
Calculate the sum of the interior angles of this polygon.

Sum = ... °

8. A fair spinner is divided into 6 equal sections. Each section is labelled with a number, as shown below.



(a) The spinner is spun once. [3]

(i) Write down the probability that the spinner lands on the number 1.

(ii) Write down the probability that the spinner lands on an *odd* number.

(iii) Write down the probability that the spinner lands on the number 5.

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P(1) = ...

P(odd) = ...

P(5) = ...

Two fair three-sided spinners, each numbered 1, 2 and 3, are spun together. The score is the *sum* of the two numbers shown.

(b) Complete the sample space diagram below to show all the possible scores. [3]

Spinner 1

Spinner 2	+	1	2	3
	1	2	3	
	2			
	3			6

(c) Using your completed sample space diagram, write down the probability that the two spinners show a total score of 4. [3]

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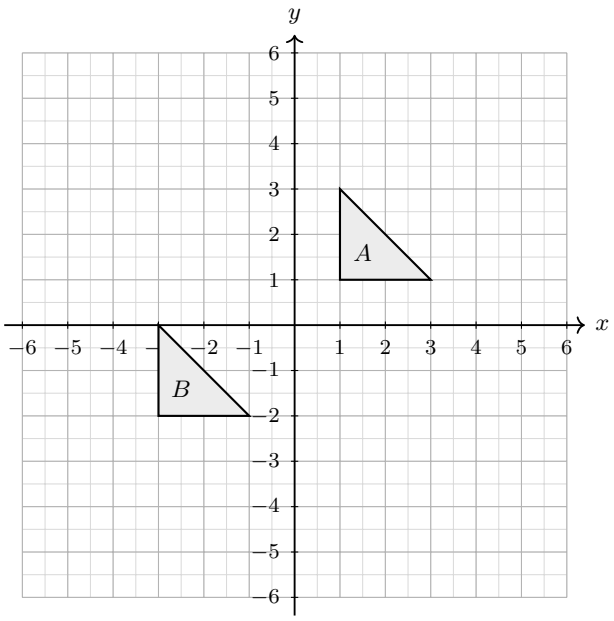
P(total $= 4$) = ...

9. Use the grid below to answer parts (a) and (b) of this question.



(a) Translate shape A by the vector $\begin{pmatrix} -5 \\ -4 \end{pmatrix}$. [3]

Label the new shape P.

(b) Reflect shape A in the x-axis. [3]

Label the new shape Q.

(c) Describe fully the single transformation that maps shape A onto shape B. [2]

Transformation: .....