Candidate Name	Centre Number	Candidate Number
Mel@JustMaths		0

SOLUTIONS

WJEC CBAC

GCSE

MATHEMATICS
UNIT 1: NON-CALCULATOR
FOUNDATION TIER

SPECIMEN PAPER SUMMER 2017

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
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 in this booklet.

Take π as 3·14.

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.

The assessment will take into account the quality of your linguistic and mathematical organisation, communication and accuracy in writing in question **1**.

For Examiner's use only		
Question	**Maximum Mark**	**Mark Awarded**
1.	6	
2.	4	
3.	3	
4.	4	
5.	4	
6.	5	
7.	3	
8.	3	
9.	6	
10.	4	
11.	3	
12.	6	
13.	6	
14.	3	
15.	3	
16.	2	
TOTAL	65	

Formula list

Area of a trapezium = $\dfrac{1}{2}(a+b)h$
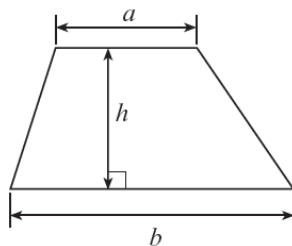
1. *You will be assessed on the quality of your organisation, communication and accuracy in writing in this question.*

The prices of tickets for the Anglesey Show in 2014 were as follows:

Adults	£15
Seniors (60+)	£13
Children (5 to 15)	£5

× 2 = £30
13
5
£48

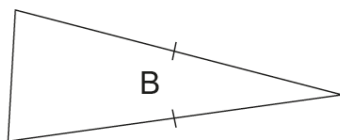Mrs Williams paid for 2 adults, 1 senior and 1 child with three £20 notes.

How much change did Mrs Williams receive? *= £60* [6]

£60 − 48 = £12

2.
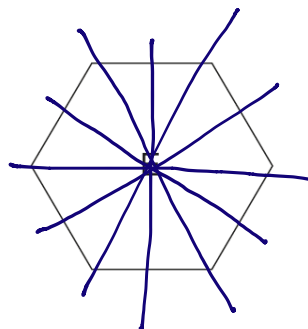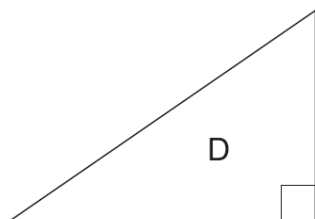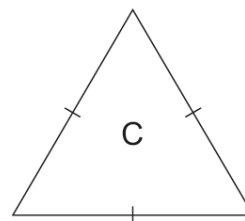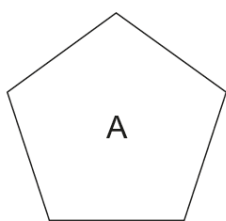
(a) What special name is given to shape **E**?
Circle your answer. [1]

Pentagon   Sixagon   (Hexagon)   Nonagon   Heptagon

(b) What special name is given to shape **B**?
Circle your answer. [1]

(Isosceles triangle)   Right-angled triangle   Triagon   Equilateral triangle   Scalene triangle

(c) Circle either TRUE or FALSE for each of the following statements. [2]

Shape **A** is a pentagon	(TRUE)	FALSE
Shape **B** has a pair of parallel sides	TRUE	(FALSE)
Shape **D** has two sides that are perpendicular	(TRUE)	FALSE
Shape **E** has six lines of symmetry	(TRUE)	FALSE
Shape **A** has no lines of symmetry	TRUE	(FALSE)

3.   Circle the correct answer for each of the following questions.

(a)   The fraction $\dfrac{408}{1224}$ is the same as

$$\dfrac{408}{1224} \; ; \; \dfrac{204}{612} = \dfrac{102}{306} = \dfrac{51}{153} = \dfrac{1}{3}$$

$\dfrac{500}{1200}$ $\dfrac{1}{3}$ ⟵circled $\dfrac{1}{2}$ $\dfrac{40}{122}$ $\dfrac{48}{14}$

[1]

(b)   When $a = 3$ and $b = 5$, then $2a + b$ is equal to

28   235   16   11 ⟵circled   38

[1]

$$2a = 2 \times 3 = 6$$
$$2a+b = 6+5 = 11$$

(c)   Half of $7\dfrac{1}{2}$ is

$3 \cdot 55$ $3\dfrac{1}{2} \cdot 5$ $3\dfrac{3}{4}$ ⟵circled $3\dfrac{1}{4}$ $3 \cdot 525$

[1]

$$\tfrac{1}{2} \text{ of } 7 = 3 \cdot 5$$
$$\tfrac{1}{2} \text{ of } \tfrac{1}{2} = \tfrac{1}{4} = 0 \cdot 25 \qquad = 3 \cdot 75 = 3\tfrac{3}{4}$$

4.   *(a)*   Choose one term from the list below to describe the chance of each of the following events happening.

impossible   unlikely   even chance   likely   certain

   (i)   You will obtain a ten when a fair six-sided dice numbered 1 to 6 is rolled.   [1]

............................Impossible..

   (ii)   A person chosen at random was born on a weekend.   [1]

........................$\frac{2}{7}$ unlikely..

(b)   Fill in the blanks to match each event to its chance of happening.   [2]

Obtaining a red ball when choosing a ball at random from a bag containing 7 blue balls and ……7………. red balls.	**Even chance**
Obtaining a ticket numbered less than ......101........... when choosing a ticket at random from a box containing tickets numbered 1 to 100.	**Certain**

5. *(a)* Write down the coordinates of the points *A*, *B* and *C* shown on the grid below.

[3]
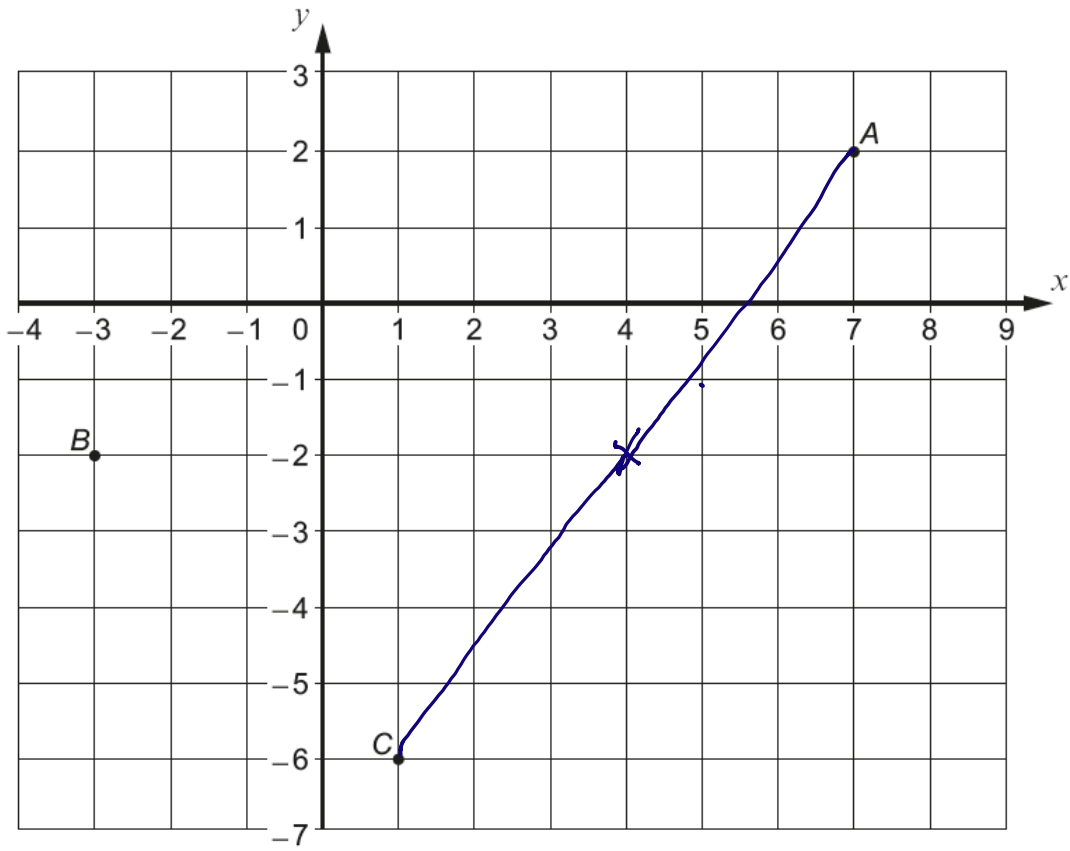
A (......7...... , ...2......)   B (...-3...... , ...-2......)   C (.....1..... , ...-6....)

(b) Write down the coordinates of the mid-point of line *AC*. [1]

Mid-point at (.....4......, ...-2.........)

6.   *(a)*   Use the following clues to find the missing number.

- The number is between 1 and 20
- It is not an even number
- It is a multiple of 3
- It is a square number

[3]

1 ~~2~~ 3 ~~4~~ 5 ~~6~~ 7 ~~8~~ 9 ~~10~~

11 ~~12~~ 13 ~~14~~ 15 ~~16~~ ·17 ~~18~~ 19 ~~20~~

Missing number is ....9.......

(b)   (i)   Using all the numbers 0, 1, 3 and 5, fill in the blanks.   [1]

| 3 | 5 | − | 1 | 0 | = | **2** | **5** |

(ii)   Using all the numbers 0, 1, 3 and 5, fill in the blanks.   [1]

| 5 | 0 | × | 1 | 3 | = | **6** | **5** | **0** |

7. Calculate the floor area of a rectangular room that is 8 metres long and 3 metres wide.
You must give the units of your answer. [3]

8×3

$= 24 \, m^2$

8. In the following table, the letters a, b and c represent different numbers.
The total for each row is given at the side of the table.
Find the values of a, b and c. [3]

$a3$	$2a6$	$a3$	12
$a3$	$b5$	$b5$	13
$a3$	$b5$	c	6

$4a = 12 \quad a = 3$

$3 + 2b = 13$ $8 + c = 6$

$2b = 10 \quad b = 5$ $c = -2$

$a = $ ......3...... $b = $ ......5...... $c = $ ......-2......

9. Calculate the following.

(a) $5^2 \times 2^3$ [2]

$$25 \times 8 = 200$$

(b) $0{\cdot}3 \times 0{\cdot}6$ [1]

$$0{\cdot}18$$

(c) $8{\cdot}7 - 5{\cdot}25$ [1]

$$8{\cdot}\overset{6}{7}\overset{1}{0}$$
$$\underline{5{\cdot}25}$$
$$3{\cdot}45 \qquad = 3{\cdot}45$$

(d) $\dfrac{7}{8} - \dfrac{1}{4}$ [2]

$$\frac{7}{8} - \frac{2}{8} = \frac{5}{8}$$

10. (a) Write down the next two numbers in the following sequence. [2]

$$18 \quad 17 \quad 14 \quad 9 \quad 2 \quad -7$$
$$-1 \quad -3 \quad -5 \quad -7 \quad -9$$

(b) Simplify the expression $7x + 3y - 5x - 6y$. [2]

$$2x - 3y$$

11. Circle the correct answer for each of the following statements.

(a) The area of the right-angled triangle drawn below is

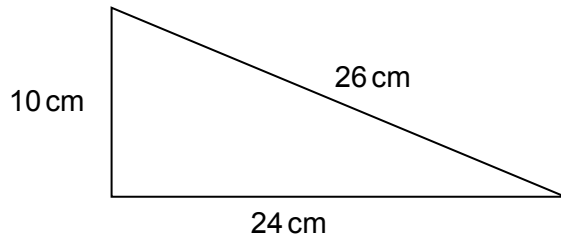240 cm²   60 cm²   260 cm²   (120 cm²)   6240 cm²

[1]

$\frac{1}{2} \times 10 \times 24$

10 cm   26 cm   24 cm

Diagram not drawn to scale

(b) The value of x shown in the triangle below is

40°   (20°)   9°   180° $\frac{1}{9}$°

[1]

$5x$ $3x$ x
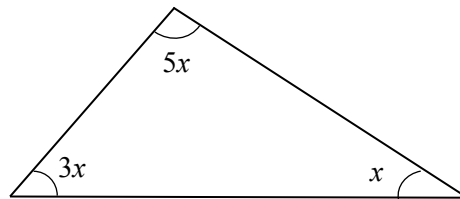
$9x = 180$
$x = 20$

Diagram not drawn to scale

(c) The volume of the cuboid shown below is

(30 m³)   10 m³   31 m³   62 m³   235 m³
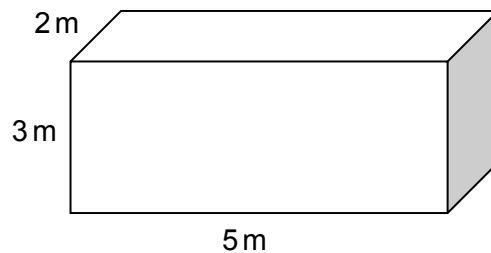
[1]

2 m   3 m   5 m

$2 \times 3 \times 5 = 30$

Diagram not drawn to scale

12. In a game, cards are chosen at random from two boxes.
One card is chosen at random from box A and one card is chosen at random from box B.

Box A contains these two cards. | −3 | | +3 |

Box B contains these five cards. | −2 | | −1 | | 0 | | +1 | | +2 |

The two numbers on the chosen cards are multiplied together to give a score.
The person choosing the cards wins a prize if the score is more than zero.

Complete the table below to show all the possible scores and calculate an estimate for the number of prize winners when 70 people play the game once.   [6]

Box B

	−2	−1	0	+1	+2
−3	+6	+3	0	−3	−6
+3	−6	−3	0	+3	+6

Box A

$$P(morethanzero) = \frac{4}{10}$$

$$\frac{4}{10} \times 70 = \underline{\underline{28}}$$

13. Solve each of the following equations.

(a) $7x - 4 = 2x + 11$ [3]

$5x = 15$

$x = 3$

(b) $3(2x + 7) = 9$ [3]

$2x + 7 = 3$

$2x = -4$

$x = -2$

14. Are the following statements true or false? Circle the correct answer.
You must give a full explanation for your decision in each case.

(a)
When a number that ends in 8 is divided by 2, the answer is always a
multiple of 4. [1]

true **(false)**

$18 \div 2 = 9$ and 9 is not a multiple of 4

(b)
When two consecutive whole numbers are multiplied together, the
answer is always an even number. [2]

(true) false

$1 \times 2 = 2 \rightarrow$ even

$2 \times 3 = 6 \rightarrow$ even

$3 \times 4 = 12 \rightarrow$ even   any number multiplied by an even number

is even

15.

E
|
A ——————————————————— L ——————————————————— B

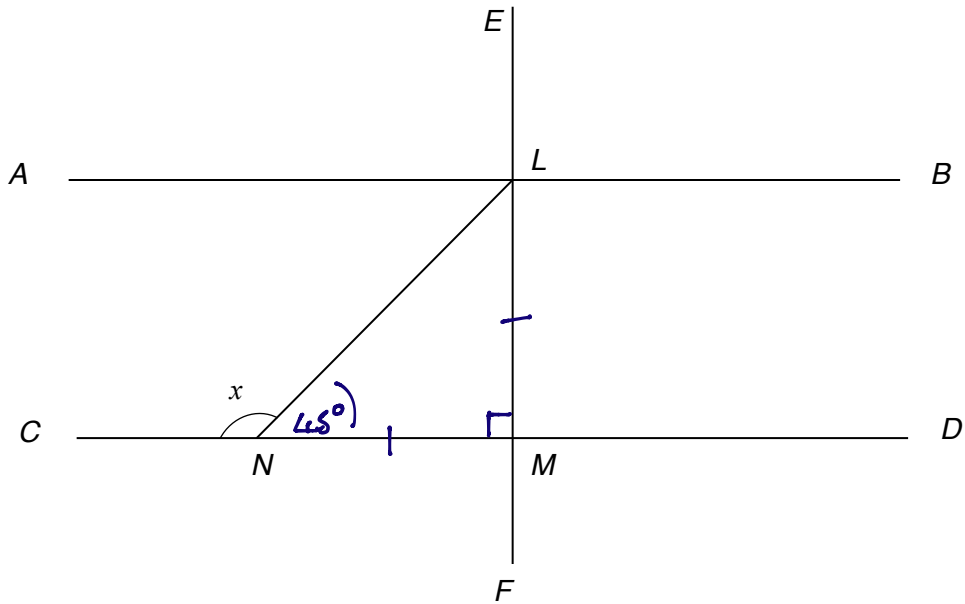x
C ——— N 45°) ——— M ——————————— D

F

Diagram not drawn to scale

The line *AB* is parallel to the line *CD*.
The line *CD* is perpendicular to the line *EF*.
Triangle *LMN* is an isosceles triangle.
Find the size of angle *x*.
You must show all your working.   [3]

$L\hat{M}N = 90°$

$180 - 90 = 90$

$90 ÷ 2 = 45$

$180 - 45 = 135$ $x = 135°$

16. Select four **different** whole numbers between 1 and 9 inclusive such that,

- their mean is 6 → Total = 24

- their range is 5. [2]

4 5 6 9 Range = 5

mean = 24 ÷ 4 = 6

Answer: 4 5 6 9