Solutions

Surname	Centre Number	Candidate Number
Other Names		0

GCSE – NEW

3300U30-1

A16-3300U30-1

MATHEMATICS
UNIT 1: NON-CALCULATOR
INTERMEDIATE TIER

E D C B
30 49 76 106
15+ 25+ 38+ 53+

TUESDAY, 8 NOVEMBER 2016 – MORNING

1 hour 45 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 continuation page at the back of the booklet, taking care to number the question(s) correctly.

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.

In question **6**, 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.	6	6
2.	3	9
3.	3	12
4.	6	18
5.	5	23
6.	7	30
7.	5	35
8.	3	38
9.	3	41
10.	6	47
11.	7	54
12.	3	57
13.	4	61
14.	4	65
15.	5	70
16.	6	76
17.	4	80
Total	80	

E D C B

3300U301 01

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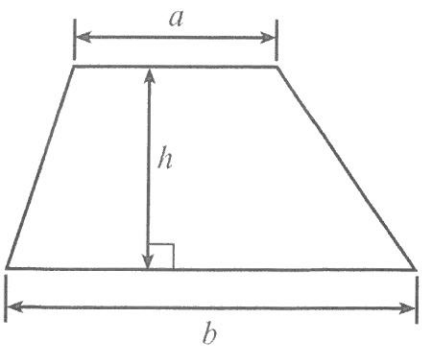
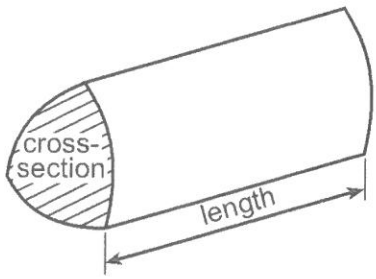
Formula List – Intermediate Tier

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



Volume of prism = area of cross-section × length



Examiner only

1. Calculate each of the following.

(a) $0{\cdot}4 \times 0{\cdot}7$ [1]

0.28 B1

(b) $13{\cdot}8 - 7{\cdot}45$ [1]

$13.80 - 7.45 = 6.35$ B1

(c) $3^3 - 2^4$ [2]

$3^3 = 3 \times 3 \times 3 = 27$ B1

$2^4 = 2 \times 2 \times 2 \times 2 = 16$ B1

11

(d) $\frac{9}{10} - \frac{3}{5}$ [2]

$\frac{9}{10} - \frac{6}{10} = \frac{3}{10}$ M1 A1

Examiner only

2. Circle either TRUE or FALSE for each of the following statements. [3]

20% of 70 is the same as 70% of 20.	TRUE	FALSE
$\frac{1}{2}$ of $\frac{1}{8}$ is the same as $\frac{1}{8}$ of $\frac{1}{2}$	TRUE	FALSE
A number is halved. The answer is halved, and then this answer is halved again. This gives the same answer as dividing the original number by 6.	TRUE	FALSE
Dividing a number by 15 is the same as first dividing by 10 and then dividing the answer by 5.	TRUE	FALSE
Multiplying a number by 2·5 is the same as first multiplying by 10 and then dividing the answer by 4.	TRUE	FALSE

Space for working:

10% of 70 = 7 10% of 20 = 2

20% of 70 = 14 70% of 20 = 14

$\frac{1}{2} \times \frac{1}{8} = \frac{1}{16}$ / $\frac{1}{8} \times \frac{1}{2} = \frac{1}{16}$

Choose 18 ÷2 9 ÷2 4·5 ÷2 2·25

18 ÷6 3

Choose 30 ÷15 2

30 ÷10 3 ÷5 3/5

Choose 10 ×2·5 25

10 ×10 100 ÷4 25

$9\overline{)144}$ = 16

Examiner only

3. A shop has 31 plant pots.
Some are blue, some are yellow and the rest are red.
There are five more blue pots than yellow pots.
There are four times as many blue pots as there are red pots.

Calculate how many pots there are of each colour. [3]

36 × 4 = 144

$B + Y + R = 31$

$B = Y + 5 \Rightarrow B - 5 = Y$

$B = 4R \Rightarrow \frac{B}{4} = R$

$B + B - 5 + \frac{B}{4} = 31$

$2B + \frac{B}{4} = 31 + 5$

$2B + \frac{B}{4} = 36$

$\times 4$

$8B + B = 144$

$9B = 144$

$B = 144 \div 9$

Blue 16 Yellow 11 Red 4

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

33 26 19 12 5 -2

-7 -7 -7

B1 B1

(b) Simplify the expression $+10g - 5f - 3g + 3f$. [2]

$7g - 2f$

(c) Using the formula $2T = M + 3K$, find the value of K when $T = 11$ and $M = 4$. [2]

$2 \times 11 = 4 + 3k$

$22 = 4 + 3k$ B1

$22 - 4 = 3k$

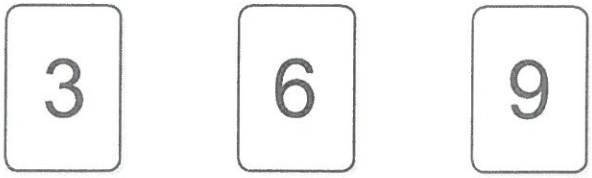
$18 = 3k$

$18 \div 3 = k$ $k = 6$ B1

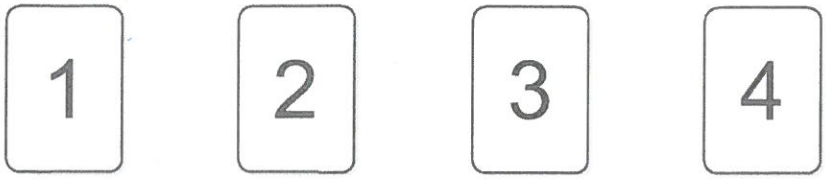
(E)

Examiner only

5. Three **red** cards have the following numbers written on them.



Four **green** cards have the following numbers written on them.



In a game, the cards are turned face down.
A player chooses one red card and one green card at random.
The player's score is the sum of the two numbers.

(a) Complete the following table. [1]

Red card \ Green card	1	2	3	4
9	10	11	12	13
6	7	8	9	10
3	4	5	6	7

B1

(b) A player wins a prize if the score is **more** than 9.
Safira plays the game once. What is the probability that she wins a prize? [2]

$\frac{5}{12}$

B1
B1

(c) 60 people play the game once.
Approximately how many people would you expect to win a prize? [2]

$\frac{5}{12} \times 60 = 5 \times 5 = 25$

M1
A1

Examiner only

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

A right-angled triangle *BCD* is joined to a rectangle *ABDE*, as shown below.

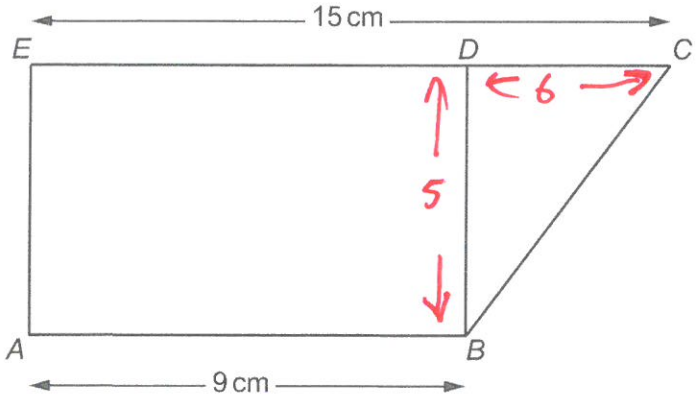


Diagram not drawn to scale

The area of the rectangle is 45 cm^2.

Calculate the area of the right-angled triangle.
You must show your working. [5 + 2 OCW]

DC = 15 − 9 = 6cm B1

Need BD: AREA: AB × BD

9 × BD = 45 M1

BD = $\frac{45}{9}$ = 5 A1

So area of △BDC = $\frac{1}{2}$ × 5 × 6 = 15 cm^2 M1 A1

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Examiner only

7. Solve each of the following equations.

(a) $\frac{w}{5} = 10$ [1]

$W = 10 \times 5$ B1

$W = 50$

(b) $\frac{42}{x} = 7$ [1]

$42 = 7 \times x$ B1

$\frac{42}{7} = x$ $\quad x = 6$

(c) $13y - 5 = 9y + 27$ [3]

$13y - 5 - 9y = 27$

$13y - 9y = 27 + 5$ B1

$4y = 32$ B1

$y = \frac{32}{4} = 8$ B1

Examiner only

8. Two types of number are added or multiplied together.
Complete the table below to show whether the answer will be odd or even.
One answer has been filled in for you. [3]

Calculation:	Answer will be:
even number + even number	even
even number + odd number	odd
odd number + odd number	even
even number × even number	even
even number × odd number	even
odd number × odd number	odd

$4 + 5 = 9$

$3 + 5 = 8$

$4 \times 6 = 24$

$4 \times 5 = 20$

$5 \times 3 = 15$

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Examiner only

9. Write down five numbers that satisfy all of the following conditions:

- They are all between 1 and 9 inclusive.
- ✓ They have a median value of 6.
- ✓ They have a range of 7.
- ✓ Their mean is 5.

[3]

1	3	6	7	8

MEAN = $\frac{\text{TOTAL}}{5}$

$5 = \frac{\text{Total}}{5}$

$5 \times 5 = \text{Total}$

$\text{Total} = 25$

Examiner only

10. A regular polygon has exterior angles of 45°.

(a) How many sides does this polygon have? [2]

exterior angle = $\frac{360}{\text{n° of sides}}$ $45 = \frac{360}{n}$ $n = \frac{360}{45}$

45 45 n° of sides So 8 sides.

×7 ×8

315 360

3 4

(b) Each side of this regular polygon is 7 cm.
A sketch of two sides, *AB* and *BC*, of the polygon is shown below.

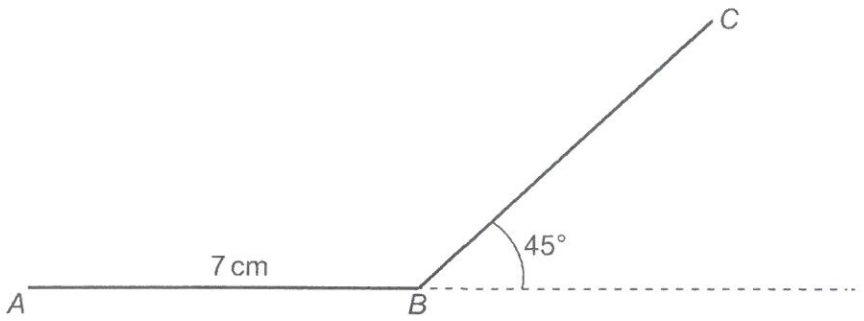
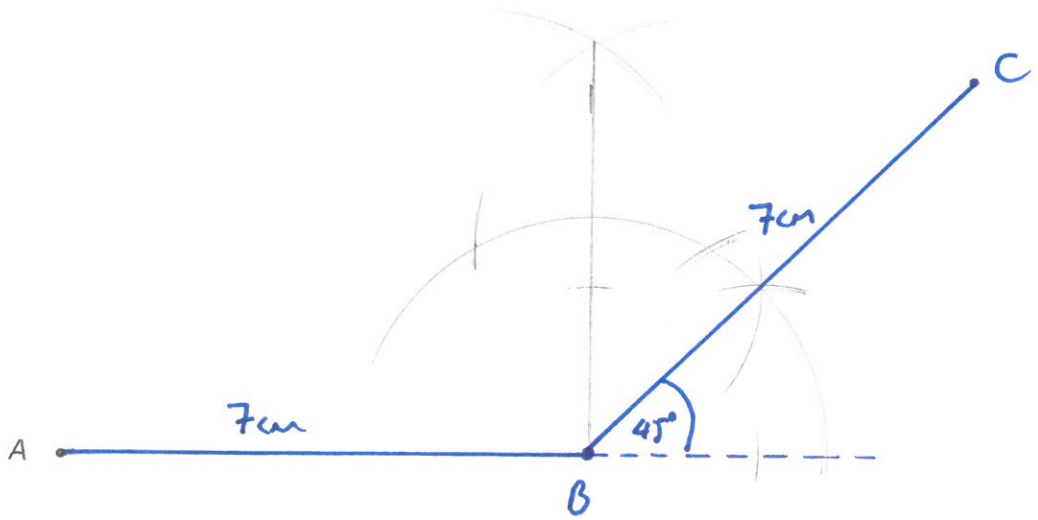


Diagram not drawn to scale

Using only a ruler and a pair of compasses, construct an accurate drawing that shows these **two sides** of the polygon.
The point *A* has been given.
You must show your construction arcs. [4]



Examiner only

11. *(a)* The table below shows some of the values of $y = 2x^2 - 5x - 1$ for values of x from −2 to 4.

Complete the table by finding the value of y for $x = -1$ and for $x = 2$. [2]

x	−2	−1	0	1	2	3	4
$y = 2x^2 - 5x - 1$	17	6	−1	−4	−3	2	11

B1 B1

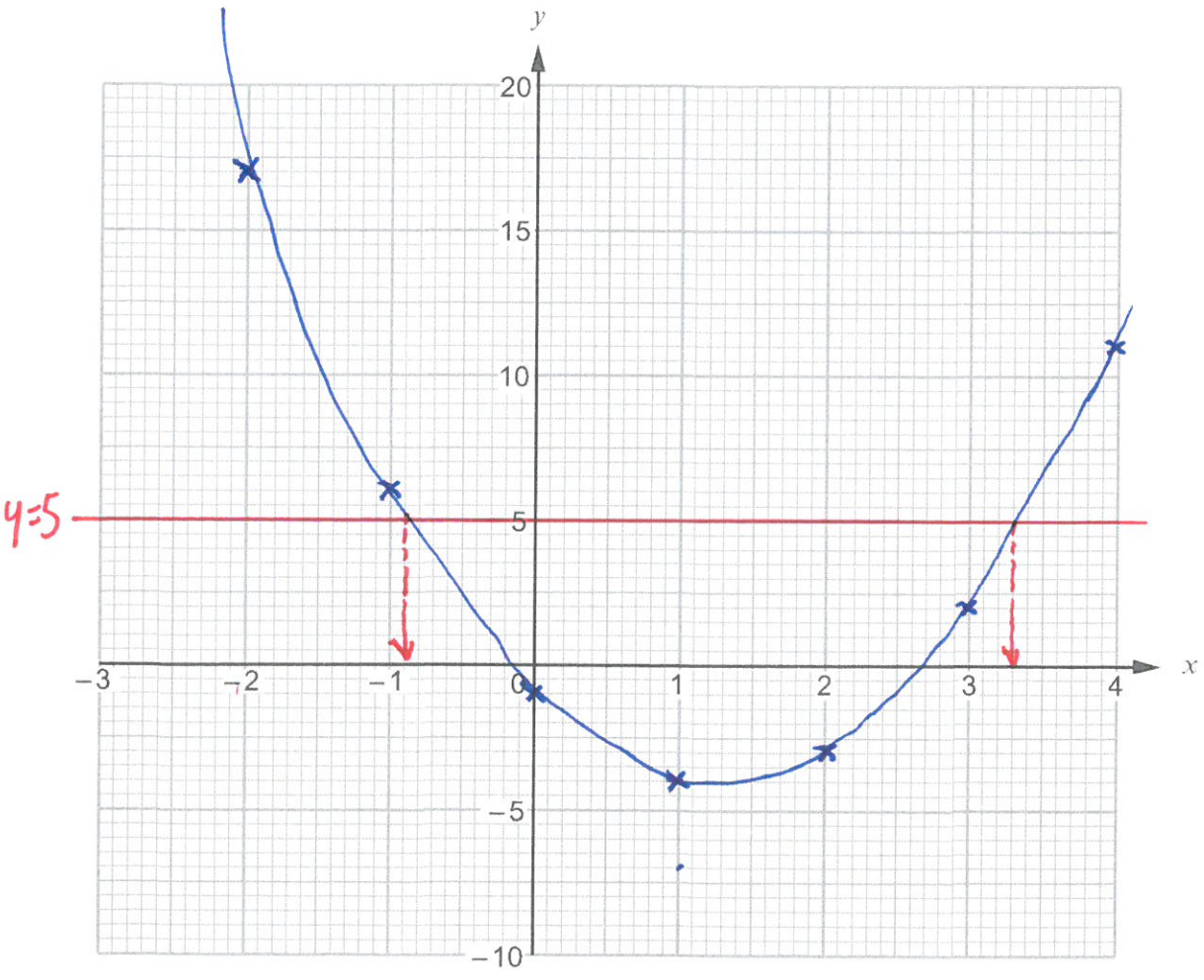
$x=-2$ $y=2(-2)^2-5(-2)-1$; $x=-1$ $y=2(-1)^2-5(-1)-1$ / $x=2$ $y=2(2)^2-5(2)-1$

$=2(4)+10-1$ / $=2(1)+5-1$ / $y=8-10-1$

$=8+10-1$ / $=2+5-1$ / $=-3$

$=17$ ✓ / $=6$

(b) On the graph paper below, draw the graph of $y = 2x^2 - 5x - 1$ for values of x from −2 to 4. [2]



P1 C1

Examiner only

(c) Draw the line $y = 5$ on the graph paper.

Write down the values of x where the line $y = 5$ cuts the curve $y = 2x^2 - 5x - 1$.
Give your answers correct to 1 decimal place. [2]

B1
B1

Values of x are -0.9 and 3.3

(d) Circle the equation below whose solutions are the values you have given in *(c)*. [1]

B1

$2x^2 - 5x - 1 = 0$ $\quad$ $2x^2 - 5x - 6 = 0$ $\quad$ $2x^2 - 5x - 5 = 0$

$2x^2 - x - 1 = 0$ $\quad$ $2x^2 - 5x + 4 = 0$

$2x^2 - 5x - 1 = 5$

$2x^2 - 5x - 1 - 5 = 0$

$2x^2 - 5x - 6 = 0$

(B) ✓

Examiner only

12. A fair six-sided dice and a fair coin are thrown together once.

Circle the correct answer for each of the following statements.

(a) The number of possible outcomes is [1]

2 6 8 (12) 24. B1

(b) The probability of getting a **4** on the dice and a **tail** on the coin is [1]

$\frac{1}{8}$ $\left(\frac{1}{12}\right)$ $\frac{1}{2}$ $\frac{1}{6}$ $\frac{1}{24}$. B1

(c) The probability of getting a **multiple of 3** on the dice and a **head** on the coin is [1]

$\frac{1}{8}$ $\frac{1}{12}$ $\frac{1}{2}$ $\left(\frac{1}{6}\right)$ $\frac{1}{24}$. B1

Space for working:

Dice Coin (OR) Dice Coin

1 , H 1 , T

2 , H 2 , T

3 , H 3 , T

4 , H 4 , T

5 , H 5 , T

6 , H 6 , T

$\frac{2}{12} = \frac{1}{6}$

Examiner only

13. *(a)* Make m the subject of the formula $y = 6m + 7$. [2]

$y - 7 = 6m$ B1

$\frac{y-7}{6} = m$ B1

(b) Factorise $6x^2 - 12x$. [2]

~~$6 \times x - 6 \times 2 \times x$~~ B1

$6x(x-2)$ B1

14. Find, in standard form, the value of each of the following.

(a) $\frac{7{\cdot}5 \times 10^6}{5000}$ [2]

$\frac{7.5 \times 10^6}{5 \times 10^3} = (7.5 \div 5) \times (10^6 \div 10^3)$

1.5×10^3

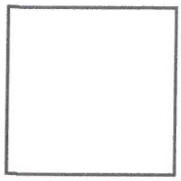
(b) $(2{\cdot}3 \times 10^3) + (6{\cdot}4 \times 10^4)$ [2]

6.63×10^4

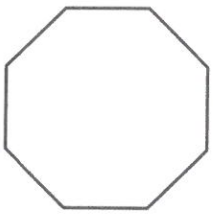
				H	T	U	.	
10^6	10^5	10^4	10^3	10^2	10^1	10^0	.	
			5	0	0	0	.	
			2	3	0	0		
		6	4	0	0	0	+	
		6	6	3	0	0		

Examiner only

15. Each side of a square is of length $(2x + 3y)$ cm.
The perimeter of the square is 62 cm.



Each side of a regular octagon is of length $(x + 2y)$ cm.
The perimeter of the octagon is 72 cm.



Use an algebraic method to find the value of x and the value of y. [5]

For square, B1 $4(2x+3y) = 62 \Rightarrow 2x+3y = 15.5$ —(1)

For octagon, B1 $8(x+2y) = 72 \Rightarrow x+2y = 9$ —(2).

$2x+3y = 15.5$ —(1)

(2) x2 $2x + 4y = 18$ —(3) M1

(3) − (1) $y = 2.5$ A1

Substitute in (2) $x + 2 \times 2.5 = 9$

$x + 5 = 9$

$x = 9 - 5$

$x = 4$ A1

$x =$ 4 $y =$ 2.5

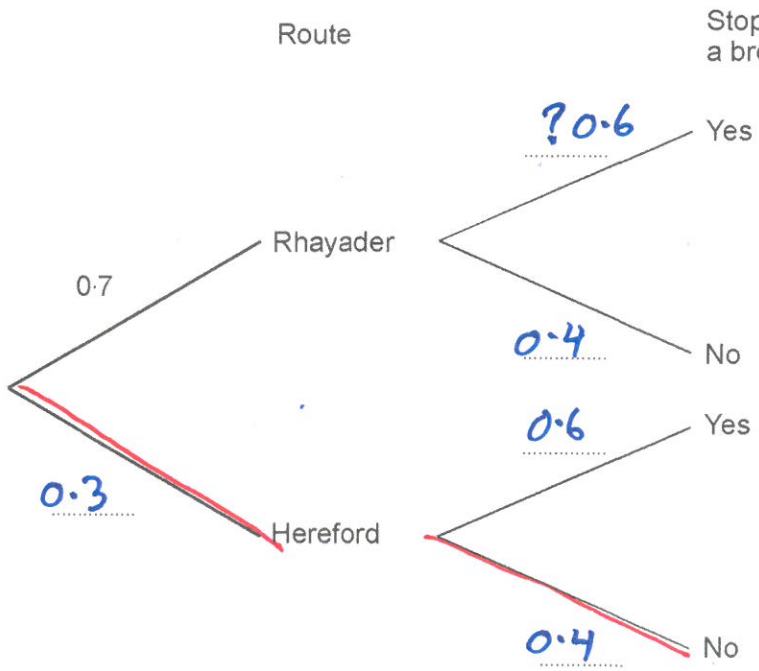
Examiner only

16. Alwyn often drives from Bangor to Cardiff.
He always chooses one of two routes for these journeys.
He either travels through Rhayader or through Hereford.
The probability that he travels through Rhayader is 0·7.

Sometimes he decides to stop for a break during his journey.
His decision is independent of the route he takes.

The probability that he travels through Rhayader **and** stops for a break is 0·42.

(a) Complete the following tree diagram. [4]



$0.7 \times ? = 0.42$ M1

$? = \frac{0.42}{0.7} = 0.6$ A1

B1

A1

(b) Calculate the probability that Alwyn travels through Hereford but **does not** stop for a break. [2]

$0.3 \times 0.4 = 0.12$ M1

A1

Examiner only

17. William has n marbles.
Lois had 4 times as many marbles as William, but she has now lost 23 of them.

Lois still has more marbles than William.

Write down an inequality in terms of n to show the above information.
Use your inequality to find the least number of marbles that William may have. [4]

$4n - 23 > n$ B1B1

$4n > n + 23$

$4n - n > 23$

$3n > 23$

$n > \frac{23}{3}$

$n > 7\frac{2}{3}$ B1

So $n = 8$ B1

END OF PAPER

GCSE MATHEMATICS Unit 1 : Intermediate Tier Autumn 2016	✓	Mark	Comment
1.(a) 0·28 or equivalent e.g. 28/100		B1	Allow ·28.
1.(b) 6·35		B1	
1.(c) (27 – 16 =) 11		B2	B1 for sight of 27 OR 16.
1.(d) Correctly using a common denominator 3/10 OR 15/50 OR 0·3 or equivalent.		M1 A1	M1 for 9/10 – 6/10 OR 45/50 – 30/50 OR 0·9 – 0·6 OR equivalent Mark final answer.
2. TRUE TRUE FALSE FALSE TRUE		B3	B3 for 4 or 5 correct. B2 for 3 correct. B1 for 2 correct.
3. Blue 16 Yellow 11 Red 4		B3	*Note Check for the required conditions being met and not the individual numbers.* *Required conditions are:* *'B = Y + 5', 'B = 4R' and 'B + Y + R = 31'.* *A condition must be met using non-negative integers, otherwise B0.* B3 all three conditions correct. B2 for two conditions correct. B1 for one condition correct. Answer space answers take precedence. If answer spaces are left blank allow unambiguous indication of their answers. A number must be given for 'Blue', else B0. Blank spaces for 'Yellow' and 'Red' to be taken as 0 unless unambiguously indicated elsewhere.
4.(a) 5 −2		B2	B1 for 5. B1 F.T. for 'their 5' – 7 if negative.
4.(b) 7g – 2*f*		B2	Must be an expression for B2. B1 for sight of (+)7g OR – 2*f*. B1 for 7g + – 2*f*. Mark final answer.
4.(c) For sight of 22 = 4 + 3K OR 18 = 3K OR $\frac{22-4}{3}$ (=K) (K=) 6		B1 B1	'2 × 11' must be shown to be 22 and used at some stage. An answer of 6 gains both B1 marks. Allow an embedded answer e.g. 2×11 = 4 + 3 ×6 gains B2. BUT 22 = 4 + 18 alone is B0. B1B0 for 18/3 as a final answer.
Ribbon marking for 5(a), 5(b) and 5(c). 5.(a) (9) **10** (11) **12** **13** (6) **7** (8) **9** **10** (3) (4) (5) (6) (7) (1) (2) (3) (4)		B1	All six entries correct.
Ribbon marking for 5(a), 5(b) and 5(c). 5.(b) $\frac{5}{12}$		B2	F.T. 'their fully completed table'. Penalise −1 for only words (5 out of 12) or only ratio (5:12). B1 for *x*/12 if *x* < 12. B1 for 5/y if *y* > 5.
Ribbon marking for 5(a), 5(b) and 5(c). 5.(c) $\frac{5}{12} \times 60$ = 25		M1 A1	F.T. 'their 5/12' (including e,g, ½, 50%, 50-50, evens) 25/60 OR 25:60 gets M1A0. 25 out of 60 gets M1A1.

GCSE MATHEMATICS Unit 1 : Intermediate Tier Autumn 2016	✓	Mark	Comment
6 (BD or AE) × 9 = 45 OR (BD or AE =) 45/9	✓	M1	Accept any unambiguous reference to or notation for BD and AE. Allow use of 'height' or 'width'.
(BD or AE =) 5(cm)	✓	A1	May be seen on the diagram.
(CD =) 6(cm)	✓	B1	May be seen on the diagram.
(Area of triangle =) $\frac{5 \times 6}{2}$	✓	M1	F.T. 'their 5' provided it clearly represents BD. F.T. 'their 6' provided it clearly represents CD.
$= 15(cm^2)$	✓	A1	No marks for an unsupported 15 BUT $15cm^2$ gains all 5 marks.
			Alternative method. *9 × (BD or AE) = 45* OR (BD or AE =) 45/9 *M1* *(BD or AE) = 5(cm)* *A1* *(Area of trapezium =)* $\frac{9 + 15}{2} \times 5$ *M1* *(F.T. 'their 5')* $= 60(cm^2)$ *A1* *(Area of triangle = 60 – 45 =) $15(cm^2)$* *A1*
Organisation and Communication.	✓	OC1	For OC1, candidates will be expected to: • present their response in a structured way • explain to the reader what they are doing at each step of their response • lay out their explanation and working in a way that is clear and logical
Accuracy of writing.	✓	W1	For W1, candidates will be expected to: • show all their working • make few, if any, errors in spelling, punctuation and grammar • use correct mathematical form in their working • use appropriate terminology, units, etc.
7.(a) (*w* =) 50		B1	Accept embedded answer. Mark final answer.
7.(b) (*x* =) 6		B1	Accept embedded answer. Mark final answer. (x =) 42/7 is B0.
7.(c)			To gain the first two B1 marks there must be an equation.
$13y - 9y = 27 + 5$		B1	Accept embedded answer. F.T. until 2nd error.
$4y = 32$		B1	
$y = 8$		B1	32/4 not accepted as final answer. If FT leads to a whole number answer, it must be shown as a whole number. Otherwise accept a fraction. Mark final answer.

GCSE MATHEMATICS Unit 1 : Intermediate Tier Autumn 2016	✓	Mark	Comment
8 Sum / Answer even + even — (even) even + odd — odd odd + odd — even even × even — even even × odd — even odd × odd — odd		B3	For all 5 correct. B2 for 4 correct. B1 for 3 correct. B0 for fewer than three correct.
9. All four conditions met. • All numbers between 1 and 9 inclusive. • Median value = 6 • Range = 7 • Total = 25		B3	B2 for three conditions met. B1 for two conditions met. Possible answers for B3 are 1, 2, 6, 8, 8. OR 1, 3, 6, 7, 8. OR 1, 4, 6, 6, 8. OR 2, 2, 6, 6, 9. Must have five numbers, otherwise B0. Numbers need not be integers. Numbers shown in the boxes take precedence. If answer boxes are left blank allow unambiguous indication of their five numbers.
10. (a) $\frac{360}{45}$ = 8 (sides)		M1 A1	For a clear intention of finding how many 45s in 360. Accept embedded answers e.g. 360/8 =45 or 45 × 8 = 360 for M1A1.
10.(b) Correct construction of 90°. Correct bisector of 90°. AB = 7cm AND BC = 7cm		B2 B1 B1	Do not penalise if they use their own point A. **Use overlay** but arcs required for the 3 'angle marks'. With sight of accurate 'method arcs'. For this B2 the construction need not be at point B. (Final B1 will not then be awarded) B1 for sight of 'method arcs' but perpendicular line not drawn (Unless intersection of construction arcs for 90° are correctly used to construct the 45° angle. In this case the B2 and B1 are gained) With sight of accurate 'method arcs'. F.T. 'their 90°'. Allow ± 0·2cm. Do not penalise if the line AB is extended as long as the position of point B is unambiguous. (Allow labelling of points B and C to be missing if end points are unambiguously identifiable.) *If all marks gained but angle ABC = 45°, penalise −1.*

GCSE MATHEMATICS Unit 1 : Intermediate Tier Autumn 2016	✓	Mark	Comment
Ribbon marking for 11(a), 11(b) and 11(c). 11 (a) 6 −3		B2	B1 for each.
Ribbon marking for 11(a), 11(b) and 11(c). 11.(b) 7 correct plots. Curve drawn.		P1 C1	**Use overlay.** F.T. 'their (−1,6)' and 'their (2,−3)'. Allow ± '½ a small square'. 'F.T. 'their plots'. At least 6 plots required Clear intention to draw a curve through 'their plotted points'.
Ribbon marking for 11(a), 11(b) and 11(c). 11.(c) −0·9 and 3·4		B2	B1 for each. Allow (−0·9,5) and (3·4,5). F.T. intersection of 'their curve' with $y = 5$ provided exactly 2 intersections seen on graph. Allow ± '½ a small square'. If no marks gained then SC1 for either of the following. $y = 5$ drawn correctly, OR Two correct F.T. values given for 'their straight line' and 'their curve' provided exactly 2 intersections seen on graph.
11.(d) $2x^2 - 5x - 6 = 0$		B1	
Ribbon marking for 12(a) and 12(b). 12.(a) 12		B1	
Ribbon marking for 12(a) and 12(b). 12.(b) $\frac{1}{12}$		B1	F.T. 1/'their (a)'
12.(c) $\frac{1}{6}$		B1	
13. (a) $6m = y - 7$ or $y - 7 = 6m$ or $-6m = 7 - y$ $m = \frac{y-7}{6}$ or $m = \frac{7-y}{-6}$ or $m = (y - 7) \div 6$		B1 B1	F.T. only from $6m = y + 7$. B1B0 for $- m = \frac{7-y}{6}$ or equivalent. *Note* Unsupported $m = y - 7 \div 6$ is B0B0. Unsupported $\frac{y-7}{6}$ is B1BO ('m' missing)
13.(b) $6x(x - 2)$		B2	B1 for any partial correct factorisation. OR B1 for $6x(x - \ldots)$ OR B1 for $6x(\ldots. - 2)$
14.(a) $1{\cdot}5 \times 10^3$		B2	If B2 not awarded, B1 for sight of 1500. OR B1 for $1{\cdot}5 \times 10^n$ from a denominator of 5×10^3 seen. OR B1 for $a \times 10^3$ with $1 \leq a < 10$ from a denominator of 5×10^3 seen.
14.(b) $6{\cdot}63 \times 10^4$		B2	B1 for $6{\cdot}6(\ldots.) \times 10^4$ if B2 not awarded. B1 for any correct answer but not in standard form.

GCSE MATHEMATICS Unit 1 : Intermediate Tier Autumn 2016	✓	Mark	Comment
15. (Perimeter of square =) $4 \times (2x + 3y) = 62$	✓	B1	Sight of $8x + 12y = 62$ or equivalent e.g. $2x + 3y = 15{\cdot}5$
(Perimeter of octagon =) $8 \times (x + 2y) = 72$	✓	B1	Sight of $8x + 16y = 72$ or equivalent e.g. $x + 2y = 9$
Correct method to solve simultaneous equations, as far as attempt at subtraction	✓	M1	F.T. 'their equations'. Allow 1 'slip', if multiplication used, but not in 'equated variable' for M1 only.
$y = 2{\cdot}5$	✓	A1	
$x = 4$	✓	A1	F.T. from their 1st variable. (Substitution in any relevant equation.)
Ribbon marking for 16(a) and 16(b). 16.(a) 0·3 on 'Hereford' branch.	✓	B1	
$0{\cdot}7 \times$ P(Yes) = 0·42	✓	M1	Allow their notation for P(Yes).
P(Yes) = 0·6	✓	A1	
0·6, 0·4, 0·6 and 0·4 correctly placed.	✓	A1	F.T. 'their P(Yes)', if between 0 and 1 but not 0·5.
Ribbon marking for 16(a) and 16(b). 16(b) $0{\cdot}3 \times 0{\cdot}4$		M1	F.T. 'their values' if both between 0 and 1.
$= 0{\cdot}12$		A1	
17. $4n - 23 > n$ or $n < 4n - 23$ or equivalent.	✓✓	B2	B1 for $4n \pm \ldots > n$ OR B1 for $4n - 23 > an + b$ $a \neq 0$. OR B1 for $4n - 23 \geq n$. B0 for $4n - 23 < n$
(least number of marbles =) 8	✓✓	B2	F.T. from 'their inequality', if of equivalent difficulty. (e.g. $4n - 23 > n + 23$ giving an answer of 16) B1 for sight of $n > \frac{23}{3}$ or equivalent. (With similar F.T. answer e.g. $n > 46/3$ from above example of $4n - 23 > n + 23$) OR allow B1 for $n > 7$ OR $n \geq 8$ (With similar F.T. answer e.g. $n > 15$ from above example of $4n - 23 > n + 23$)