GCSE Mathematics

<u>Unit 2: Calculator Allowed</u>

Intermediate Tier

County Revision Paper 1b

Week beginning 13th March 2017

<u>55 Minutes</u>

School: _____

Student Name: _____

tinyurl.com/LARevP1b

Question	Maximum Mark	Mark Awarded
2	3	
4	5	
6	3	
8	2	
10	6	
12	3	
14	6	
16	5	
18	7	

2. Circle the correct answer for each of the following

   (a) The angle between the two equal sides in an isosceles triangle is 80°
   The other angles must each be

   100°   60°   50°   180°   90°   [1]

   ....

   (b) Three of the angles in a quadrilateral add up to 290°
   The size of the forth angle is

   70°   80°   180°   360°   65.5°   [1]

   ....

   (c) Huw is facing West. He turns anti-clockwise until he is facing South.
   He has turned through an angle of

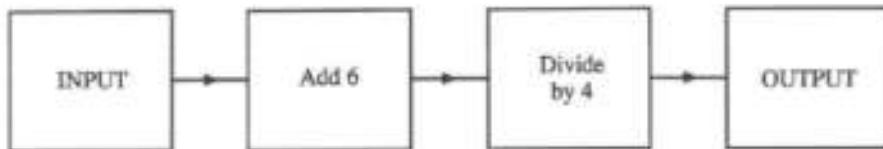   90°   360°   270°   15°   6°   [1]

   ....

4. (a)   Solve the equation   4x + 7 = 31   [2]

   ....
   ....
   ....
   ....

   (b)   A number machine is shown below

   | INPUT | → | Add 6 | → | Divide by 4 | → | OUTPUT |

   (i)   When the INPUT is 14, what is the OUTPUT?

   _____

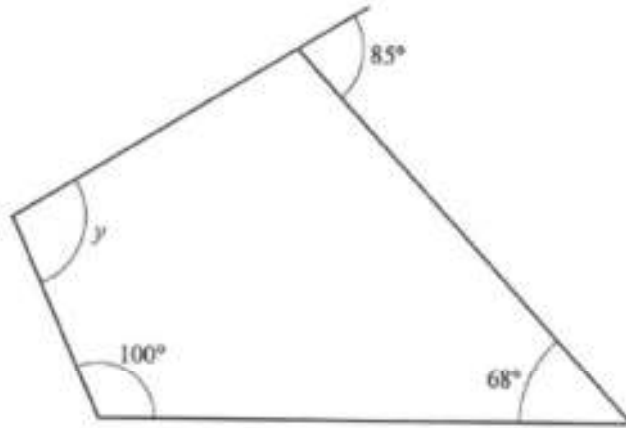   (ii)   When the OUTPUT is 7, what is the INPUT?

   _____

                                                                             [3]

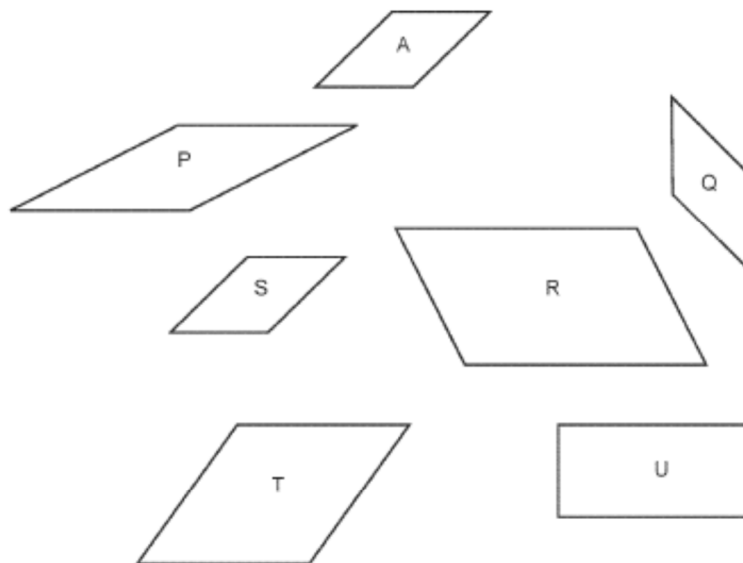6. Calculate the size of the angle marked y.

Diagram not drawn to scale

$y =$ _____ °

[3]

8.

Which of these shapes are congruent to shape A?   [2]

10. (a)   Write down the nth term of the following sequence   [2]

4,   9,   14,   19,   ……….

....

....

....

....

(b)   The nth term of a different sequence is given by $n^2 - 3$

(i)   Write down the first three terms of this sequence   [2]

....

....

....

(c)   Which term in this sequence is the last to have a value less than 40?   [2]

....

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....

12.

(a)   Simplify $4(x + 5) - 3(2x - 4)$.

_____

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_____

_____
                                                                                                                      [2]

(b)   Simplify $\dfrac{y^{16} \times y^2}{y^4}$.

_____

_____

_____
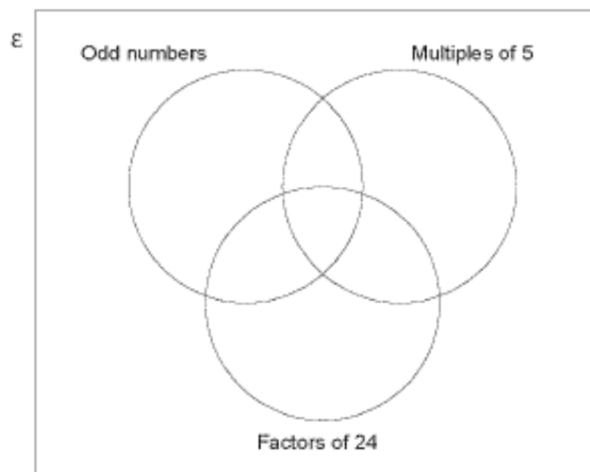
_____
                                                                                                                      [1]

14.

(a) Place the whole numbers 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10 in the correct positions in the Venn diagram. [3]

ε

Odd numbers   Multiples of 5

Factors of 24

(b) A whole number is selected at random from the set {1, 2, 3, 4, 5, 6, 7, 8, 9, 10}.

Find the probability that the number selected is:

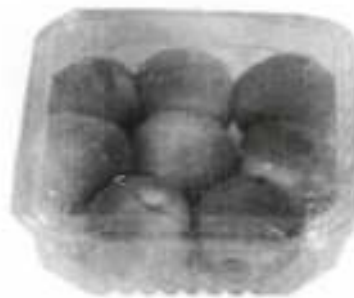an odd number   ....

an odd number that is a factor of 24   ....

not a multiple of 5 and not a factor of 24.   ....
[3]

16.

A machine is used to pack boxes of peaches.

There should be exactly 6 peaches in each box.

To check the machine, 10 boxes of peaches are selected on the hour for 5 consecutive hours. Each hour the number of boxes containing exactly 6 peaches is recorded.

	1 a.m.	2 a.m.	3 a.m.	4 a.m.	5 a.m.
Number of the 10 boxes with exactly 6 peaches	8	10	7	7	9

(a) The company prints a label for each box.

Contains at least 6 peaches

Explain why this label may not be suitable to use on the boxes of peaches. [1]

(b) It is decided to record and plot the relative frequencies for the information shown in the previous table.

   (i)   Complete the table below.
       Relative frequency must be recorded to 2 decimal places.   [2]

	1 a.m.	2 a.m.	3 a.m.	4 a.m.	5 a.m.
Total number of boxes with exactly 8 peaches	8	18	25	32	41
Total number of boxes checked	10	20	30		
Relative frequency	0·80				

   (ii)   Use the graph paper below to plot the relative frequencies.   [1]

Relative frequency (vertical axis)

1 a.m.   2 a.m.   3 a.m.   4 a.m.   5 a.m.   → Time
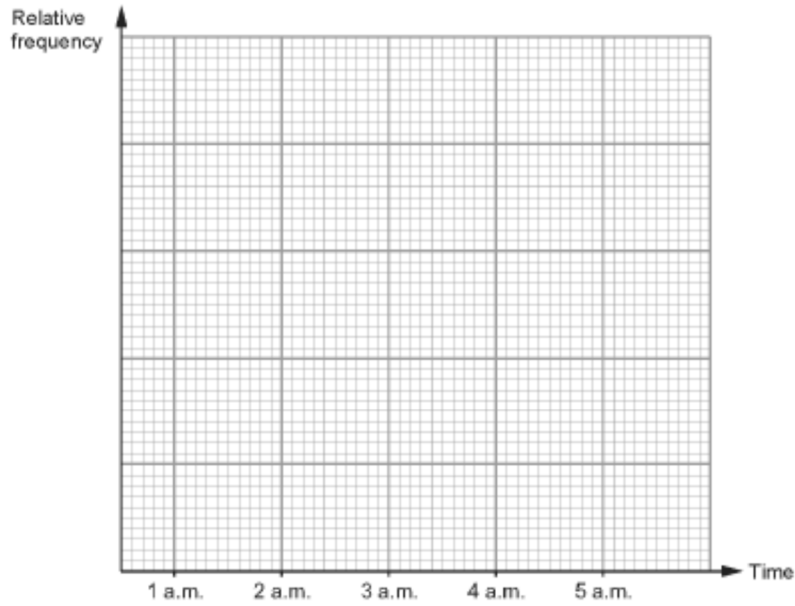
   (iii)   A box of peaches is selected at random.
        What is the best estimate of the probability that the box contains exactly
        8 peaches?   [1]

18. (a) Factorise $x^2 - 7x + 12$, and hence solve $x^2 - 7x + 12 = 0$ [3]

(b) Solve the equation $\dfrac{x-2}{3} - \dfrac{2x-1}{2} = \dfrac{7}{6}$ [4]

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