GCSE Mathematics

Unit 2: Calculator Allowed

Intermediate Tier

County Revision Paper 2b

Week beginning 24th April 2017

55 Minutes

School: _____

Student Name: _____

Question	Maximum Mark	Mark Awarded
2	3	
4	5	
6	3	
8	1	
10	6	
12	4	
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 a right angle.
The other angles must each be

45°   50°   40°   90°   55°   [1]

....

(b) A regular shape will tessellate providing its internal angle is a factor of

90°   360°   180°   45°   100°   [1]

....

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

90°   360°   270°   15°   6°   [1]

....

4. (a)   Solve the equation   7x - 9 = 33   [2]

....

....

....

....

(b)   A number machine is shown below

| INPUT | → | SUBTRACT 3 | → | DIVIDE BY 2 | → | OUTPUT |

Using the number machine, calculate

(i)   the OUTPUT when the INPUT is 7   [1]

....

(ii)   the OUTPUT when the INPUT is –5   [1]

....

(iii) the INPUT when the OUTPUT is 10.   [1]

....

6. Find the size of angle y. [3]
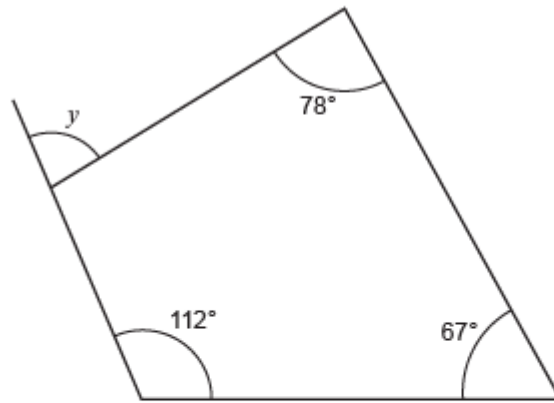
Diagram not drawn to scale

....

....

....

....

$y = $ .... °

8. (a) Which of the following shapes are congruent? [1]

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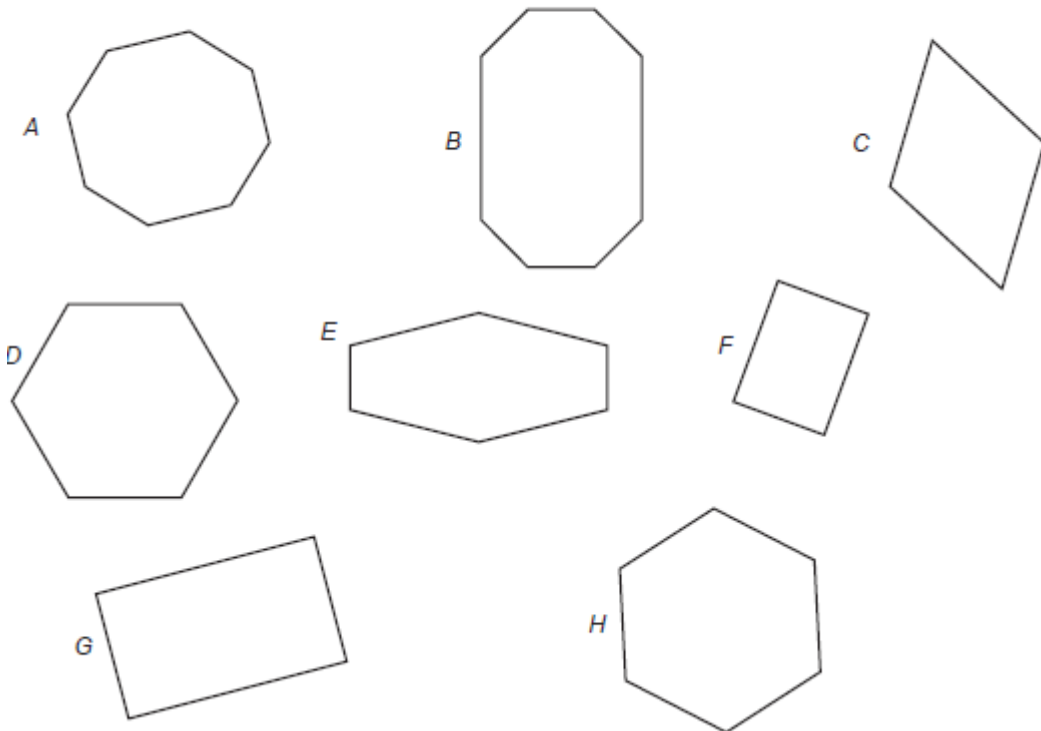
10. (a)   Write down the nth term of the following sequence   [2]

       7,   10,   13,   16,   ……….

       ....

       ....

       ....

       ....

    (b)   The nth term of a different sequence is given by $n^2 + 5$

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

       ....

       ....

       ....

    (c)   Which term in this sequence is the first to have a value greater than 50?   [2]

       ....

       ....

       ....

       ....

12. Simplify the following

       (a) $x^8 \times x^{-3}$ [1]

       ....

       (b) $(3x - 8y) - (x - 10y)$ [2]

       ....

       ....

       (c) A boy on a bicycle travels x miles in 15 minutes.
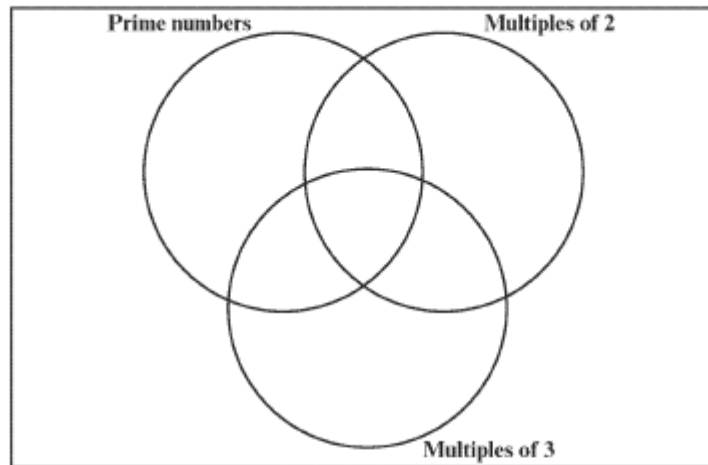
       His average speed in miles per hour is   [1]

       (circle the correct answer)

       $$\frac{x}{15} \qquad \frac{x}{4} \qquad 15x \qquad 4x \qquad \frac{15}{x}$$

14.

(a) (i) Place each of the whole numbers 42, 43, 44, 45, 46, 47, 48, 49, 50 in the correct positions in the Venn diagram.

[3]

(ii) A whole number is selected at random from the set {42, 43, 44, 45, 46, 47, 48, 49, 50}.

Find the probability that the number selected is

a prime number, ...

not a prime number, ...

a prime number that is also a multiple of 3.   ....

[3]

16.

A potato producer uses a machine to sort his potatoes.
The potato producer carried out a survey to investigate the probability of oversized potatoes passing through his sorting machine.
The relative frequency of oversized potatoes passing through the machine was calculated after a total of 100, 200, 300, 400, 500 and 600 potatoes.
The results are plotted on the graph below.
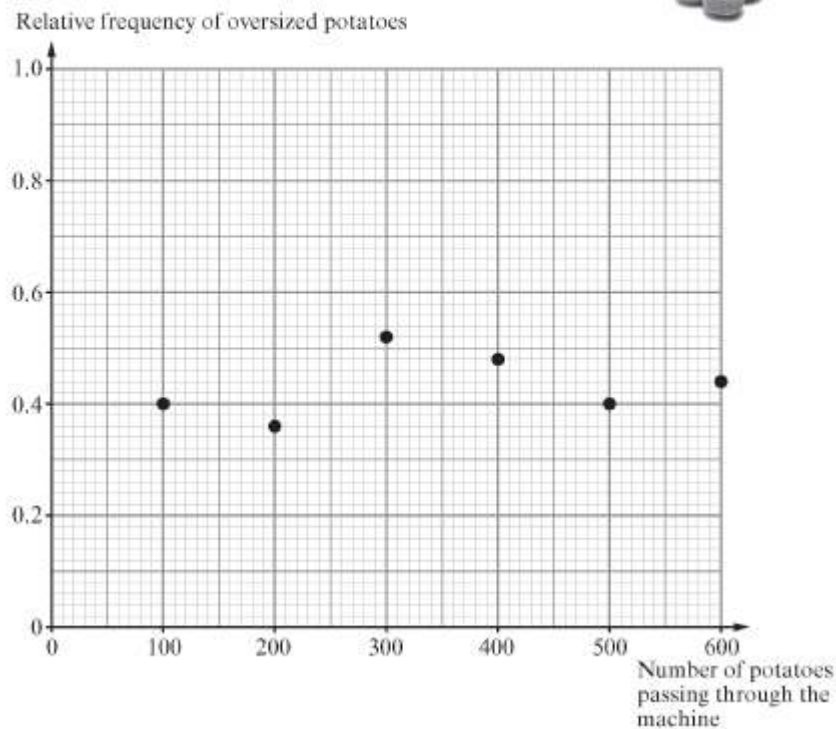
(b) A trader offers to buy oversized potatoes at 15p each.
How much would the potato producer receive if he decided to sell, to the trader, all the oversized potatoes in the first 100 potatoes sorted by the machine?

....

....

....

....

[3]

(a) Write down the best estimate for the probability that one of these potatoes, selected at random, will be oversized.
You must give a reason for your answer.

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[2]

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

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....

(b) Solve the equation $\dfrac{3x-2}{2} + \dfrac{2x+1}{6} + \dfrac{2}{9} = 0$ [4]

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