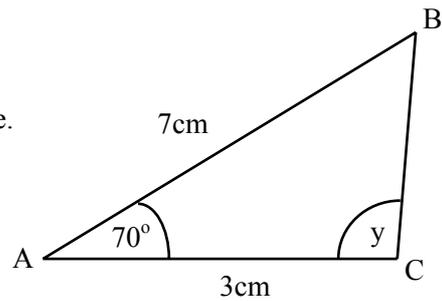


DO NOT WRITE ON THIS PAPER	TIME – 2 hours	<i>Paper 5 of 5 from ZigZag Education</i>
Sample GCSE Examination Paper Intermediate tier non-calculator paper	Standard Equipment: pen, pencil, ruler, protractor, compasses.	

1. Here is a sketch of a triangle ABC.

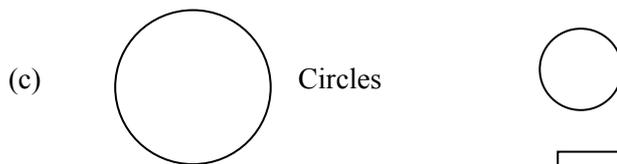
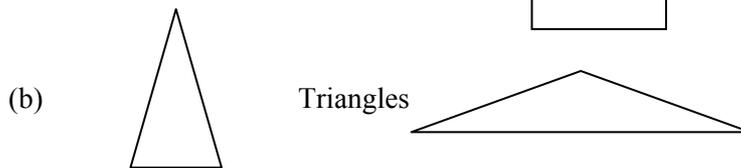
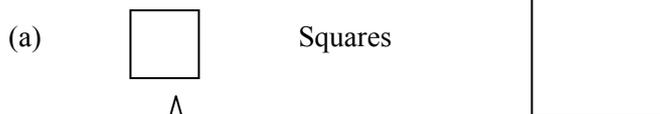
a) Construct a full scale, accurate drawing of the triangle. [3]

b) Measure the size of angle y. [1]



2. Calculate the mean of 2, 4, 5, and 5. [2]

3. Which of these pairs of shapes are mathematically similar? [4]



4. Jack and Jill each carry one bucket up a hill to fetch water. Each bucket holds 1 litre. On the way down they both carry one bucket. Jack starts by carrying a full bucket but on the way down Jack falls down, spilling a quarter of his water. Jill starts by carrying a full bucket but on the way down Jill falls down, spilling a third of her water.

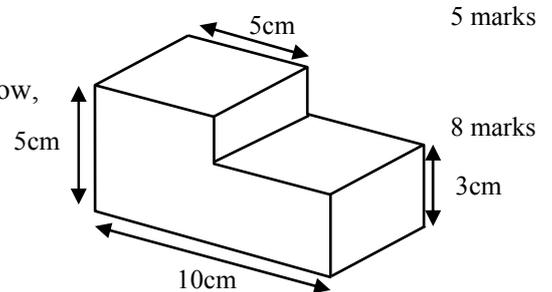
a) Write as a fraction how much water is being carried after the fall by–

i) Jack

ii) Jill

b) How much water in total are Jack and Jill carrying? 5 marks

5. Construct an accurate 2D projection of the shape shown below, with a plan and both front and side elevations. 8 marks



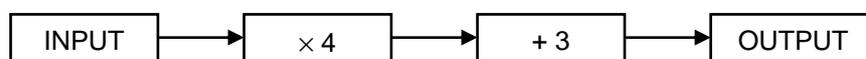
6. Find the next two terms in the number sequences below. 6 marks

a) 14, 9, 4, -1, -6,

b) 16, 8, 4, 2, 1,

c) 1, 2, 3, 5, 8, 13,

7. The diagram below shows a mathematical rule



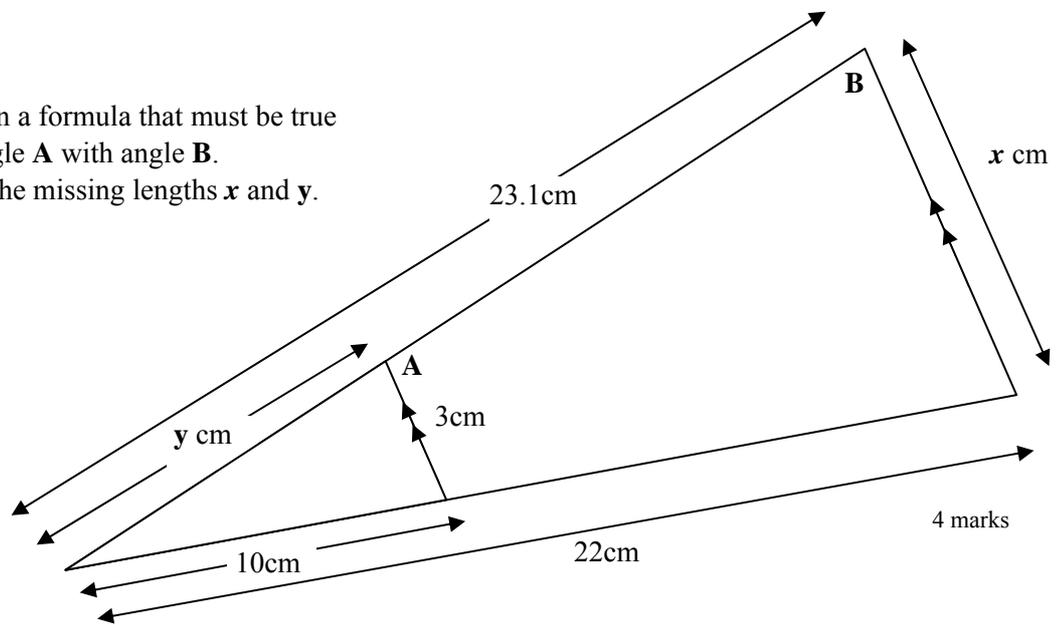
a) What is the output, when the input is 7?

b) What is the input, when the output is 23?

c) What is the output, when the input is n ? 4 marks

14. a) Write down a formula that must be true linking angle **A** with angle **B**.
 b) Work out the missing lengths x and y .

Not drawn accurately



4 marks

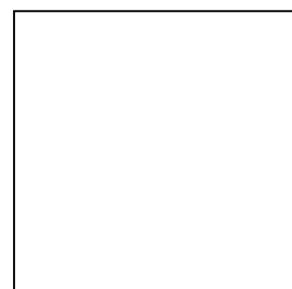
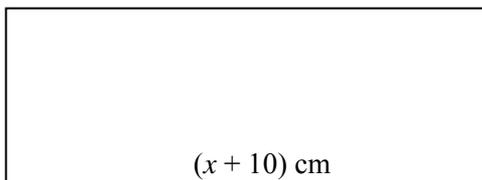
15. The following was produced by the function, $an^2 + b$, with a and b both as constants. Find a and b .

4 marks

Input, n	Output, $an^2 + b$
0	10
1	12
2	18
3	28
4	42

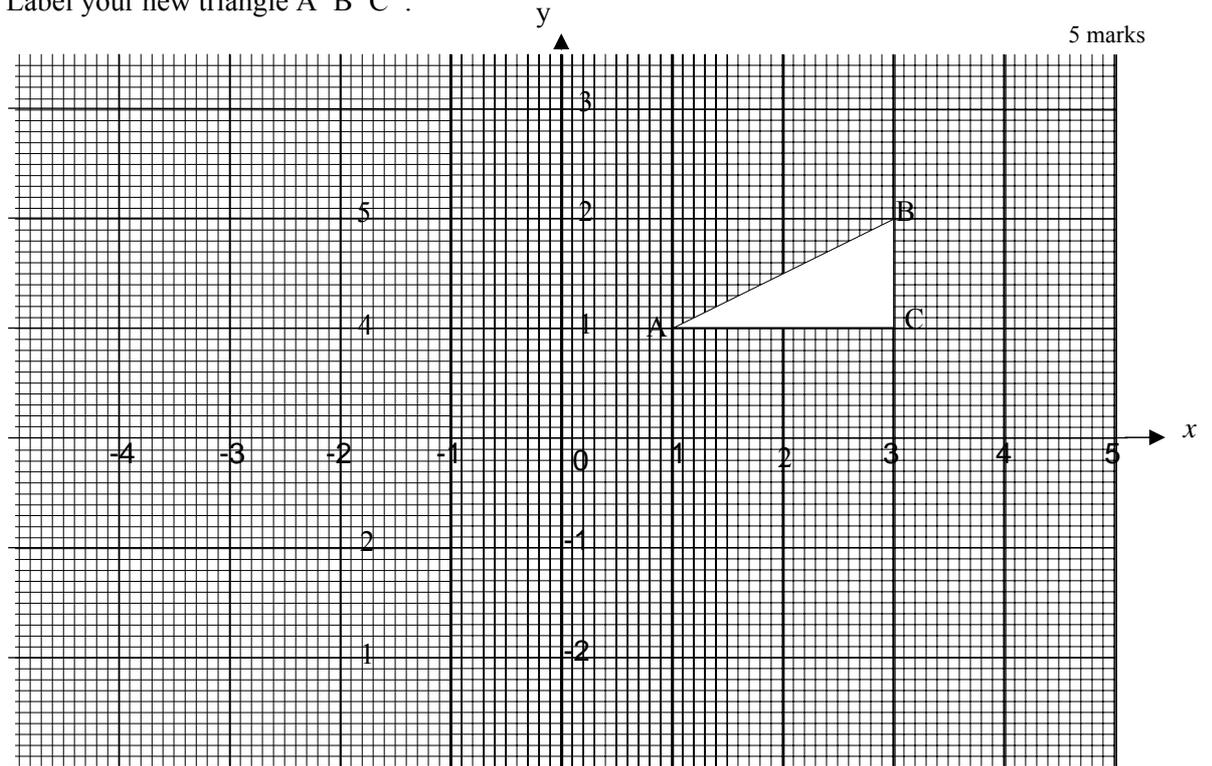
16. a) Jane thinks of a number adds 4 and then doubles her result.
 i) If Jane ends up with 100 what did she start with?
 ii) If Jane ends up with y what did she start with?
 Tom ends up with a number twice as big as the number Jane ended up with, in part ii).
 iii) Write down a formulae in y for the number Tom ended up with. 3 marks
17. a) Solve the simultaneous equations $2x + 3y = 30$
 $-3x + 5y = 69$
- b) In graphical terms, what does the solution to the simultaneous equations represent. 6 Marks

18. The areas of these two shapes are the same.



- a) Formulate an equation in x , and solve the equation.
 b) Write down the area of the square. 5 Marks

19. a) Reflect the triangle ABC in the line $y = x$ and label your new triangle A'B'C'.
 b) Rotate the original triangle ABC, about the origin, 90° clockwise. Label your new triangle A''B''C''.
 c) Enlarge the original triangle ABC by a scale factor 2, using (2,3) as the centre of enlargement. Label your new triangle A'''B'''C'''.



20. a) Rewrite the scale in the form 1:n
 The boat Floaty is on a bearing 250° from Firey Point.
 The boat Floaty is on a bearing 030° from Kilren.
 b) Mark accurately on the map the position of Floaty.
 An old ship sank between Kilren and Firey Point.
 The ship sank within 25km of Firey Point and within 40km of Kilren.
 c) Shade the area where the ship might be.

