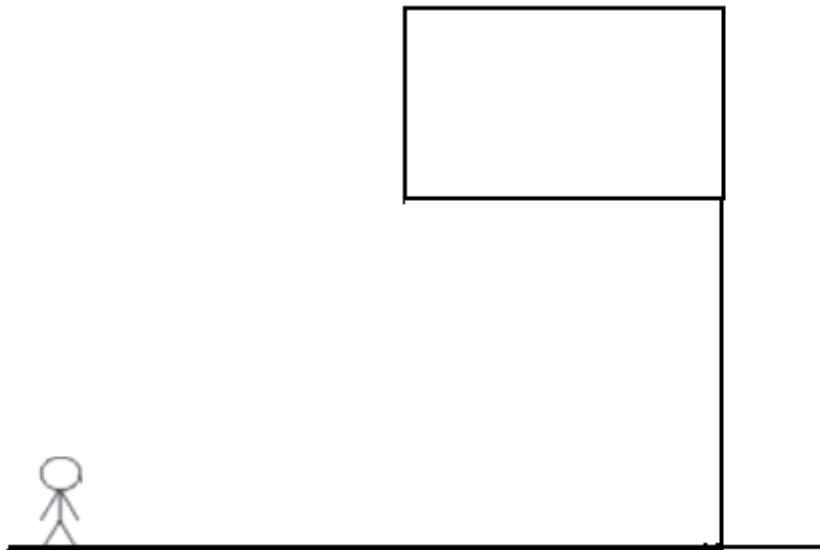


**Question**

**(Suggested maximum time: 8 minutes)**

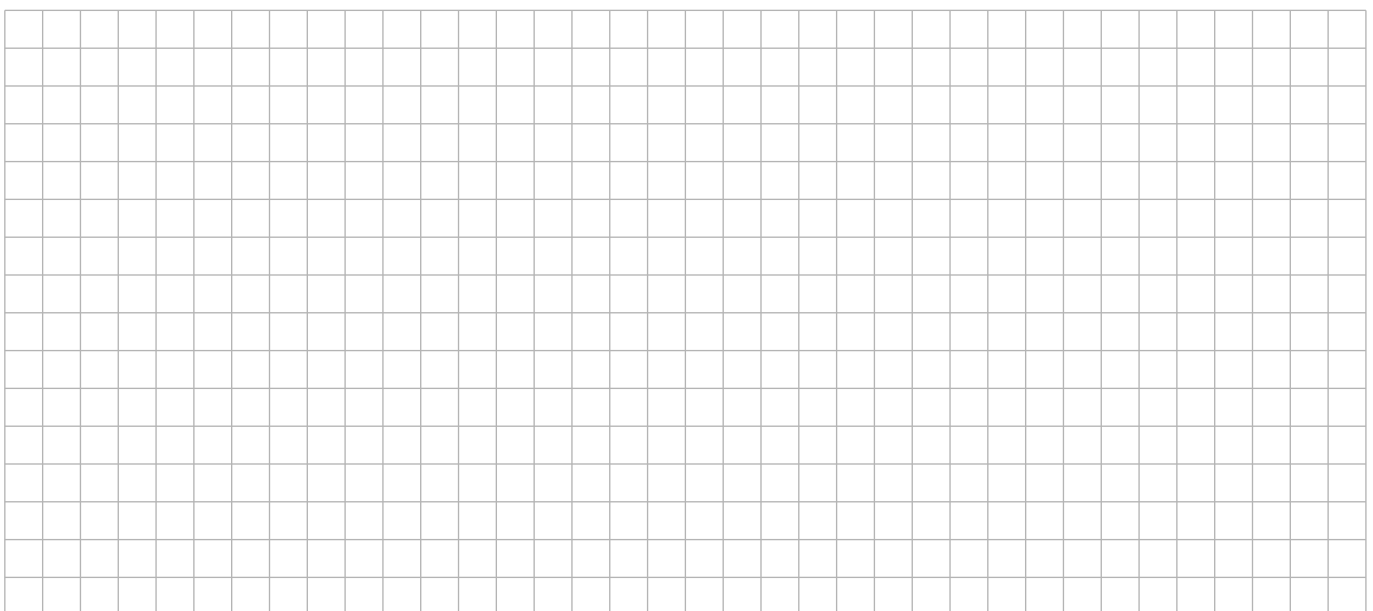
(a) Some students were measuring the height of a flagpole near the school. They had a measuring tape and a **clinometer**.



The following measurements were taken

Height of student	1.5 m
Distance from Student to Flagpole	2 m
Angle of elevation of top of flagpole ( $\theta$ )	

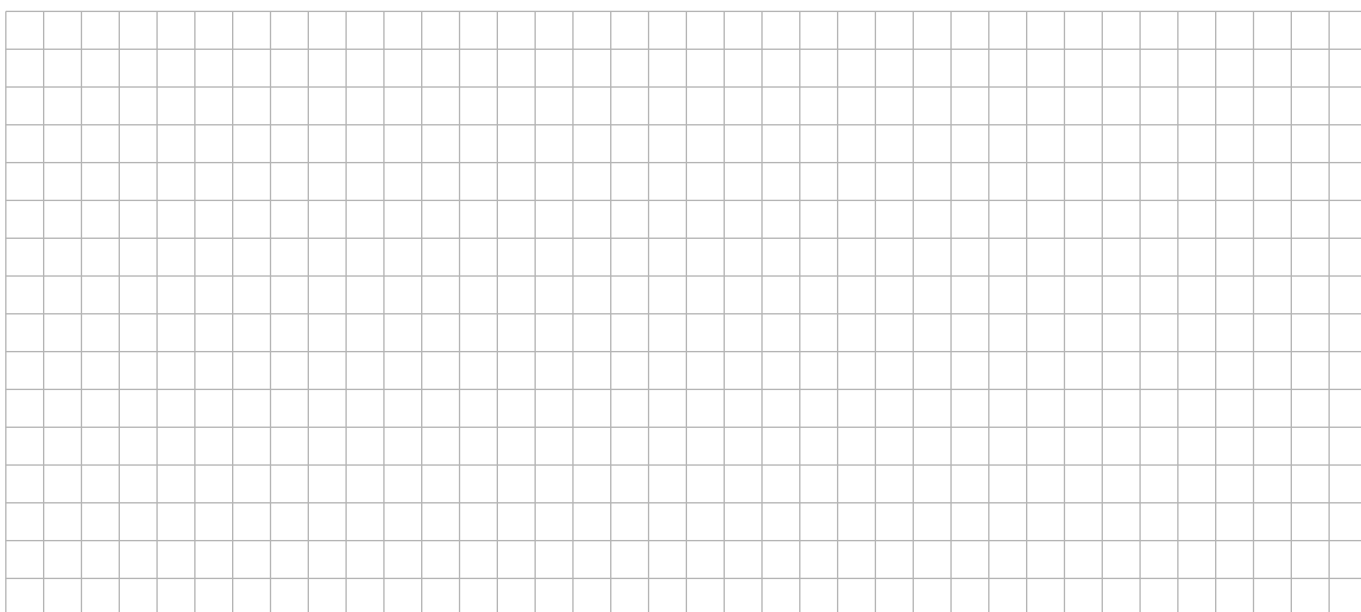
(a) Add these measurements to the diagram and show how the students could use them to calculate the height of the flagpole.



- (b) The students calculated the height of the flag pole and found it to be 9.9 m. Unfortunately, before they could hand in their work, an ink blot spilled on it and covered the angle value. They did not want to go out and measure it again. Sophie suggested they work backwards to find the missing angle.

Find the missing angle by working backwards. You will need to use the table below.

Angle $\theta$	Tan $\theta$
38	.7813
37	.7536
36	.7265
35	.7002
34	.6745
33	.6494



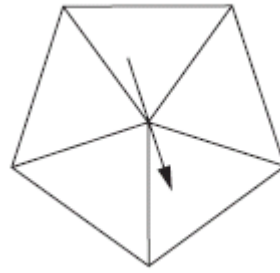


**Question**

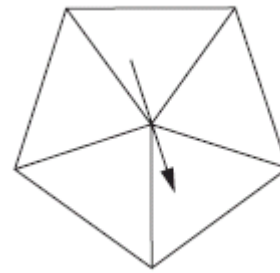
**(suggested maximum time: 8 minutes)**

On each spinner write five numbers to make the statements correct.

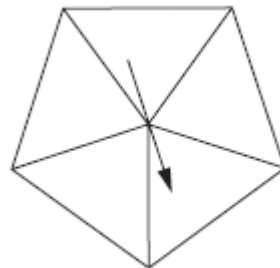
- (i) It is *certain* that you will get a number less than 6.



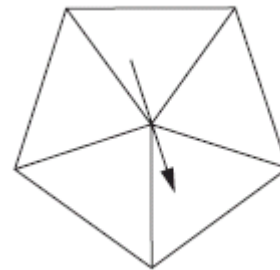
- (ii) It is *more likely* that you will get an even number than an odd number.



- (iii) It is *impossible* that you will get a multiple of 2.



- (iv) It is *likely* you will get a prime number.



**Question****(Suggested maximum time: 12 minutes)**

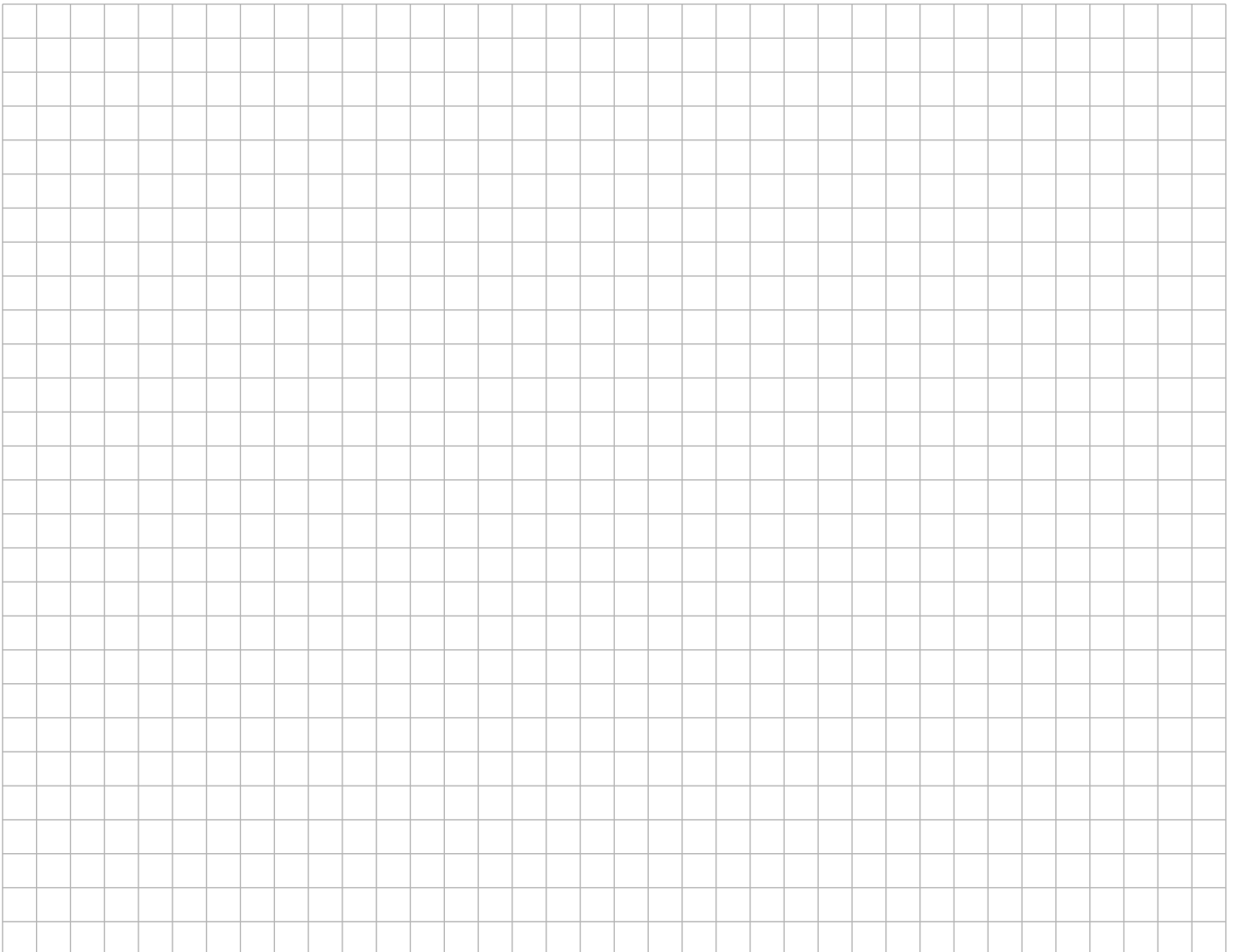
The following question was asked on the phase 10 *Censusatschool* questionnaire.

<p>12. How many cars belong to people in your household?</p> <p>..... cars</p>
--

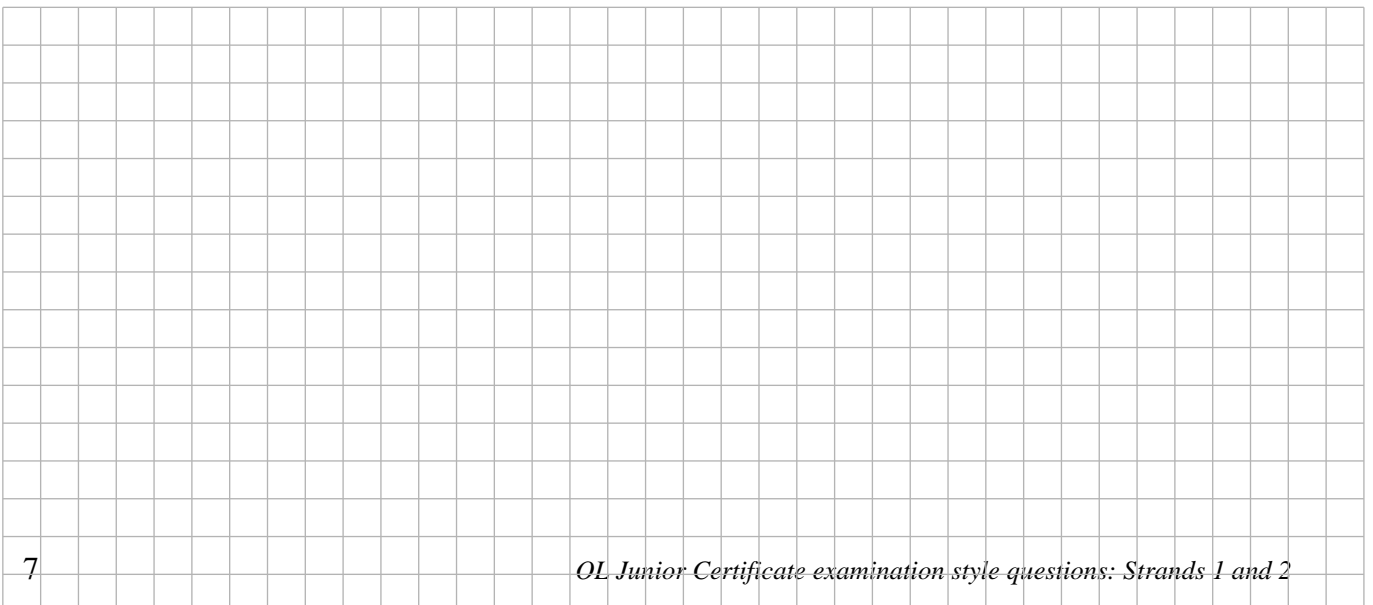
The data below are from groups of students chosen at random from Ireland and South Africa.

No of Cars per Household	
Ireland	South Africa
1	1
1	2
2	0
1	0
1	2
2	0
2	0
2	1
3	1
1	1
1	1
3	1
2	3
5	2
1	2
3	2
6	1
5	1
2	1
3	1
2	1
1	3
2	3
1	2
1	1
1	0
2	1
2	1
1	1
2	1

(a) Display the data in a way that allows you to compare the two groups.



(b) What do you notice about these two groups of students? Is there any evidence that households in one country have more cars than the other?.Explain your answer.





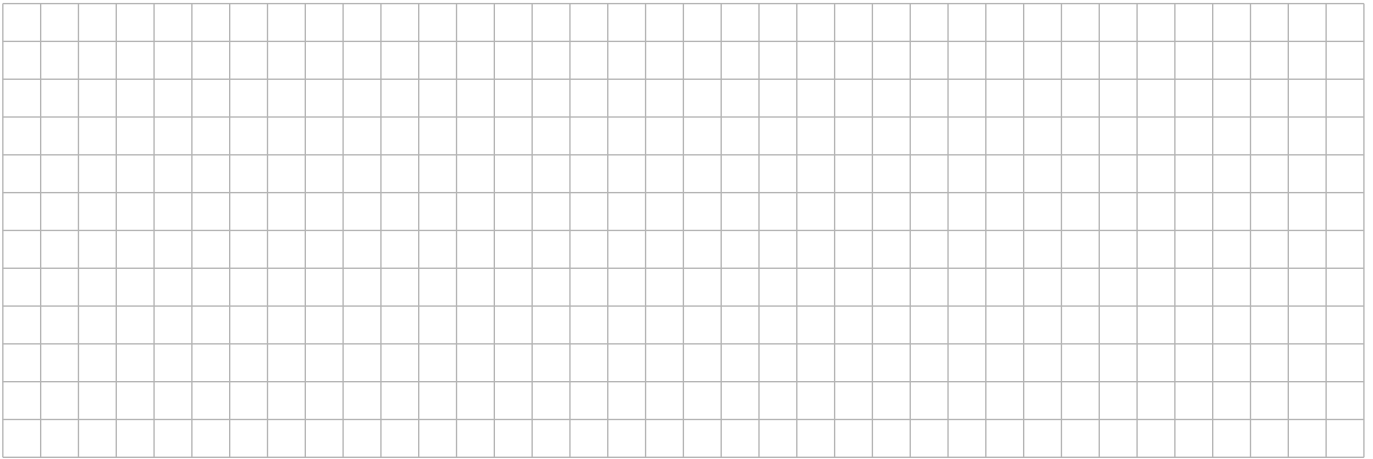








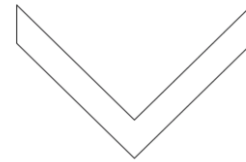
(d) Show that the rectangle  $ABCD$  has the property that you wrote down in part (c).



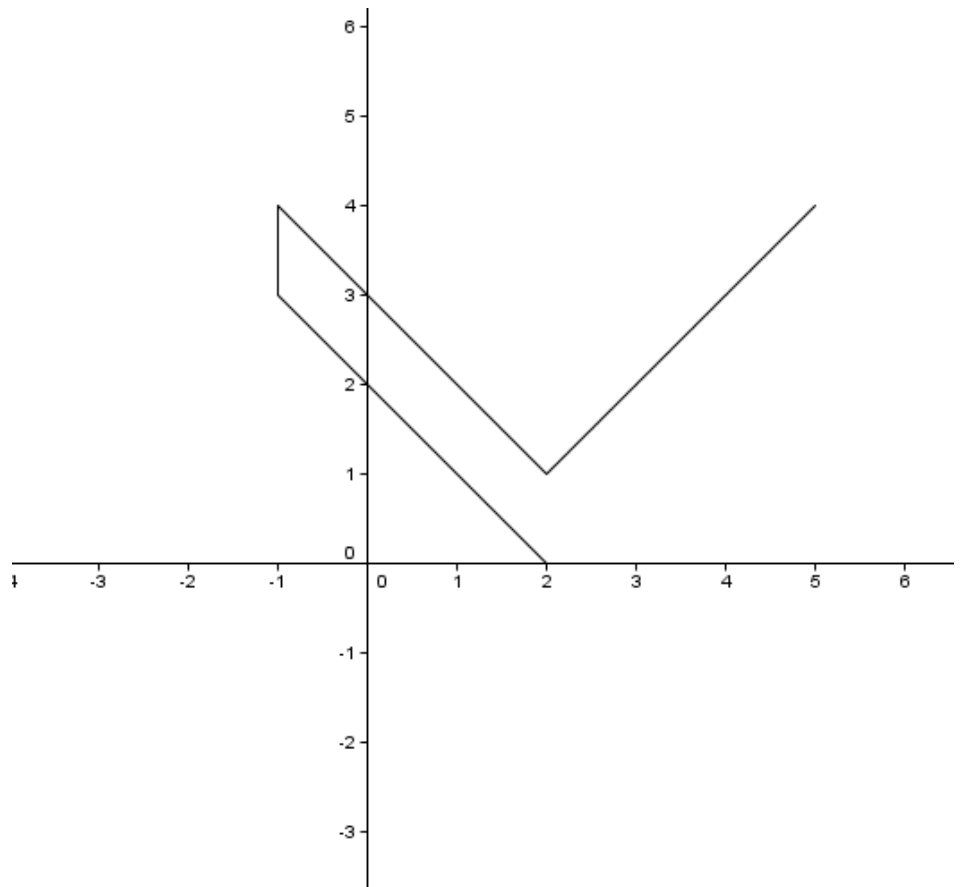
**Question**

(Suggested maximum time: 7 minutes)

John is drawing plans for a logo. The logo is in the shape of the letter V as shown.



(a) On the diagram plot three points that John will need to join in order to complete the Logo.

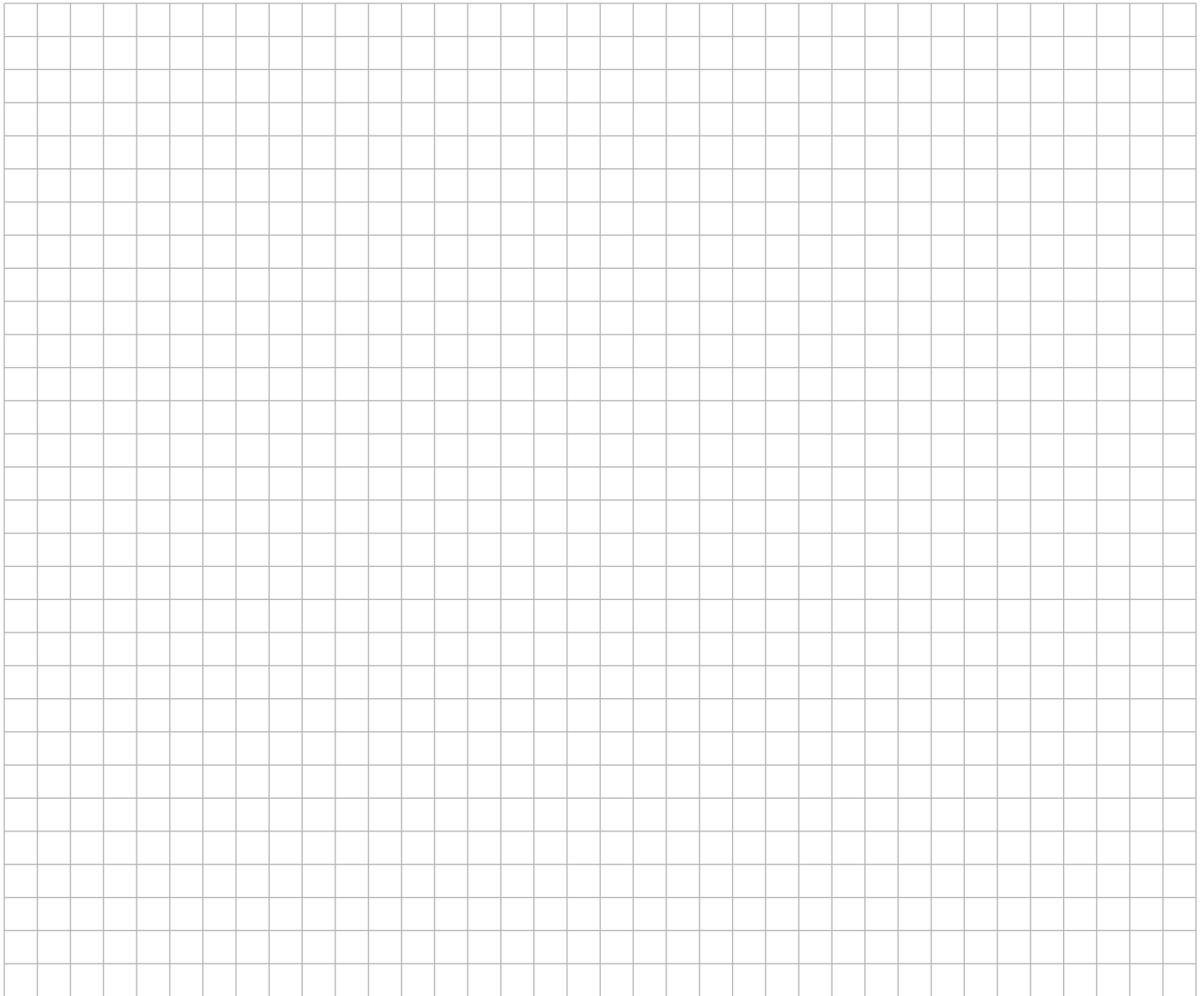


(b) Draw the axis of symmetry on the logo.

**Question**

**(Suggested maximum time 12 minutes)**

- (a) Construct a triangle  $ABC$ , where  $|AB| = 6$  cm  $|AC| = 8$  cm and  $|BC| = 10$  cm.



- (b) What type of a triangle is this? Mathematically prove that this is so.

