Surname	
Other Names	
Candidate's Signature	

GCSE 9 - 1 Questions

Congruent Triangles

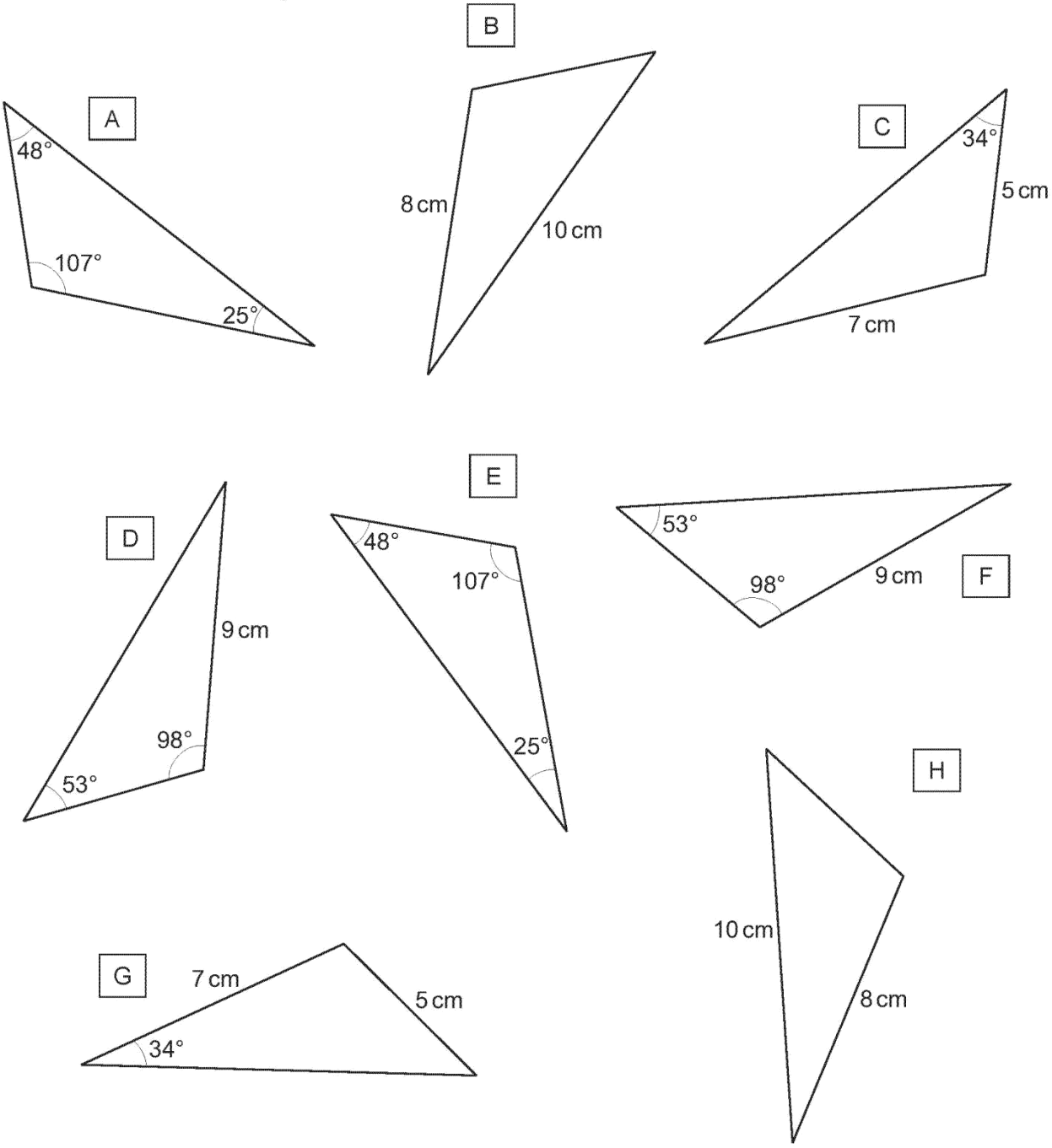
Calculator Allowed

INSTRUCTIONS TO CANDIDATES

- Write your name in the space provided.
- Write your answers in the spaces provided in this question paper.
- Answer ALL questions.
- Any working should be clearly shown in the spaces provided since marks may be awarded for partially correct solutions.
- You should have a ruler, compass and protractor where required.

Total Marks :

1) The eight triangles below have not been drawn to scale.
Some information about the lengths of the sides or the sizes of the internal angles have been included on each diagram.



Diagrams not drawn to scale

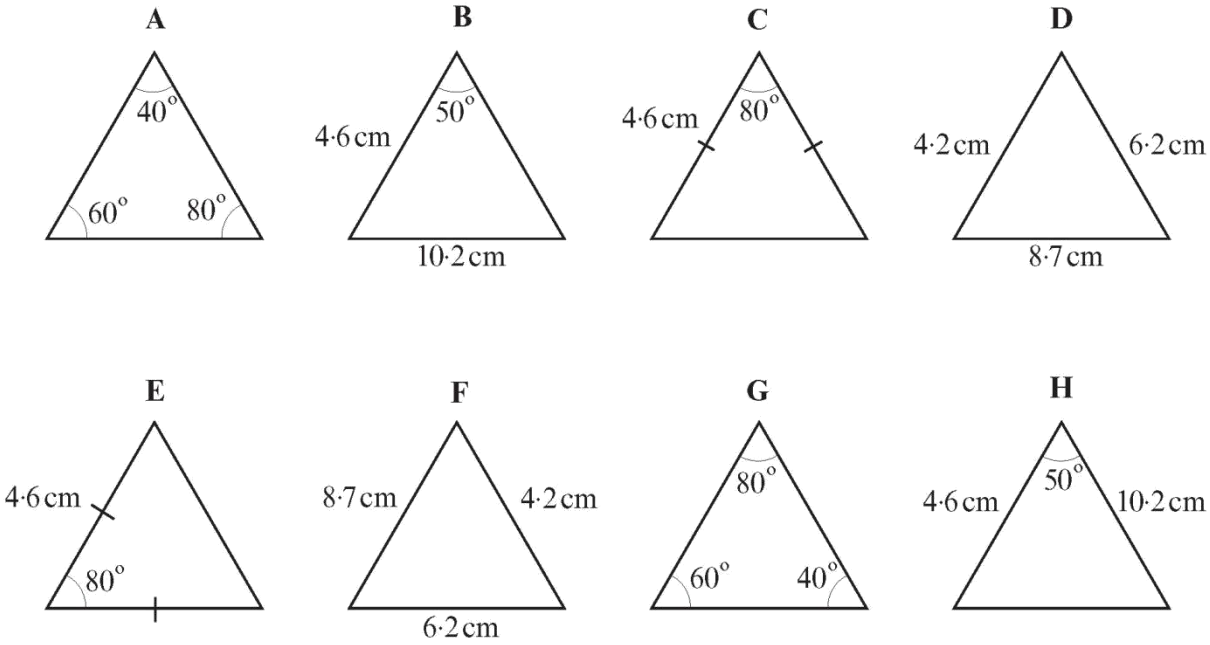
Using only the information given, state which 2 triangles are congruent and give the condition of congruency. [2]

The congruent triangles are ..... and ..... .

The condition of congruency is:

.....

2) Select two different pairs of congruent triangles from the diagrams below.
Give a reason why each of the pairs of triangles are congruent.



Diagrams not drawn to scale

Triangle ..... is congruent to triangle .....

Reason

.....

.....

[2]

Triangle ..... is congruent to triangle .....

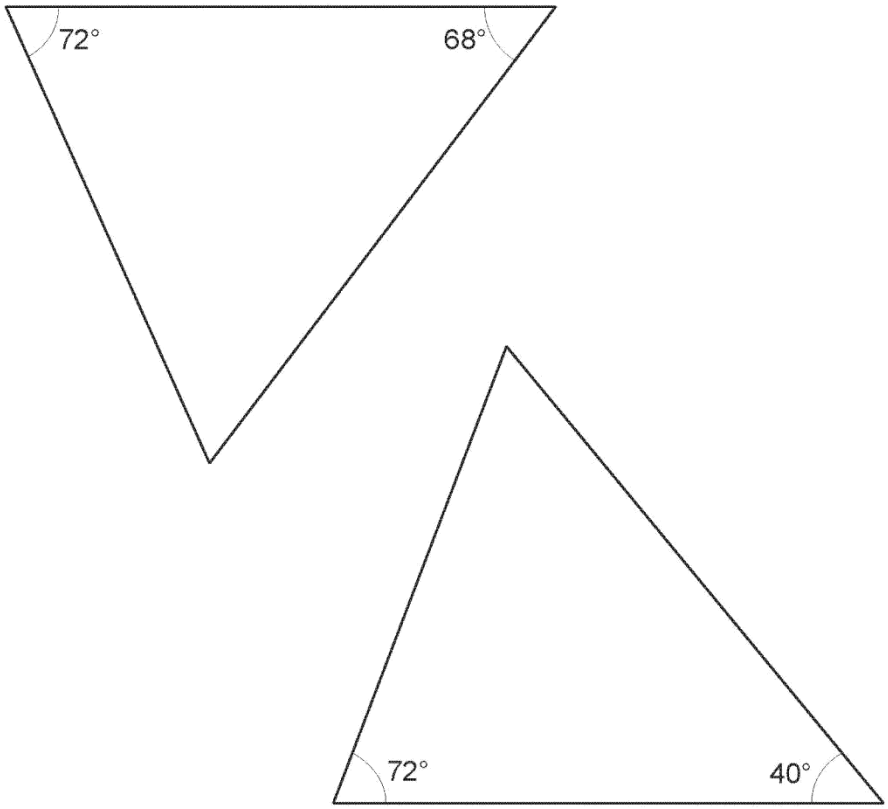
Reason

.....

.....

[2]

3) The two triangles drawn below are not drawn to scale.
Thomas says the triangles are similar but not necessarily congruent.
Is Thomas correct or not?
Explain your answer. [3]



Diagrams not drawn to scale

.....

.....

.....

.....

.....

.....

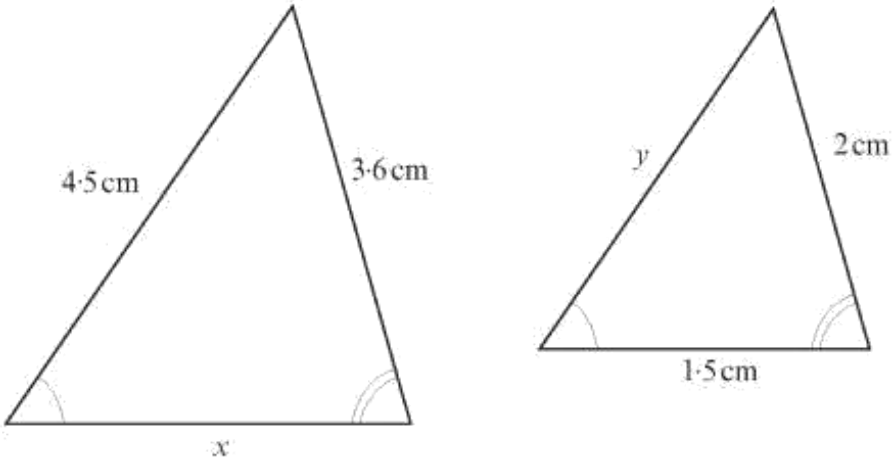
.....

.....

.....

4)

The triangles shown below are similar.



Diagrams not drawn to scale

Calculate the lengths x and y.

.....

.....

.....

.....

.....

.....

x = ... cm y = ... cm

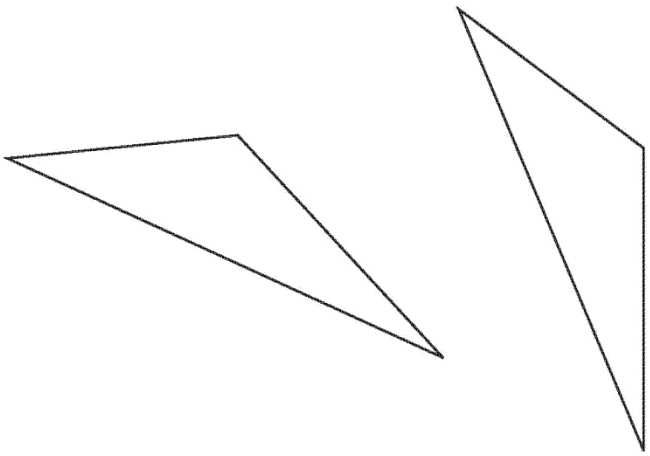
[4]

5)
The diagrams below show pairs of congruent triangles.
The diagrams are drawn to scale.

Anwen has made a statement about each of the pairs of triangles.

(a) "Look, I have measured two of the sides and one of the angles in each triangle. I have enough information to say that the triangles are congruent."

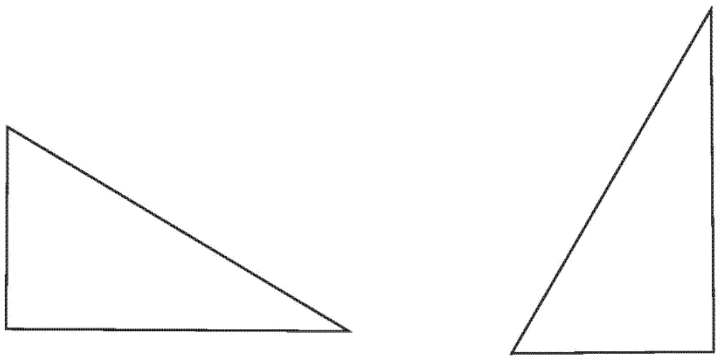
For the statement to be correct, indicate on each triangle the two sides and one angle Anwen could have measured.
Indicate clearly the corresponding sides.
Do not mark any extra detail.



[2]

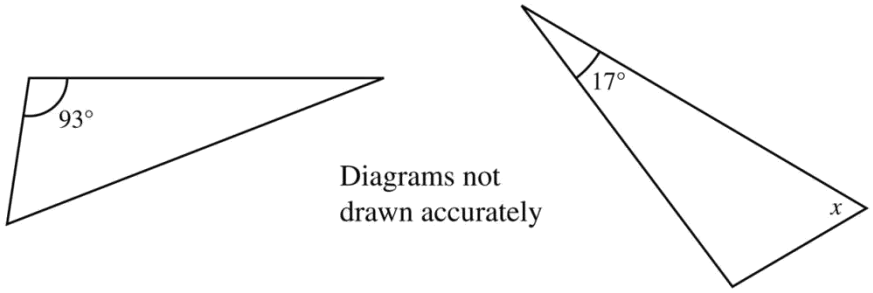
(b) "Look, I have measured one angle in each triangle and found that they each measured 90°. Then, I measured the hypotenuse of each triangle and found that they were equal."

Indicate on each triangle
- the mathematical information given in Anwen's statement, and
- mark the **minimum** extra detail required to show that the triangles are congruent.



[2]

6)



The triangles are congruent.
What is the size of angle x?

Answer x = _____° [1]

7) You are given the following information about two congruent triangles.

- The triangles are not right-angled triangles.
- In both triangles, one side is of length 3·4 cm and another side is of length 6·2 cm.

One extra piece of information is needed to prove that the triangles are congruent.
There are two possible options for this extra piece of information.
What are the two possible options?

Option 1: .....

.....

.....

.....

Option 2: .....

.....

.....

.....

[2]

8)

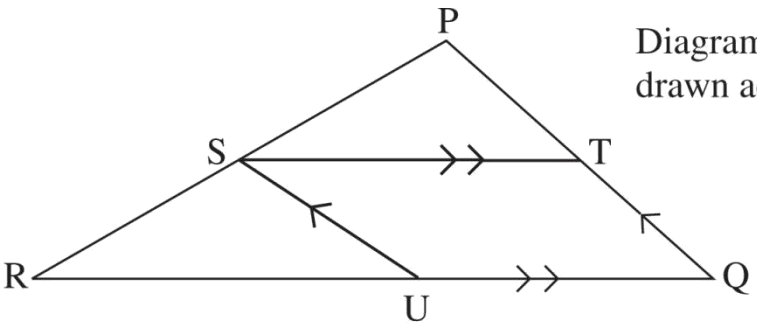


Diagram not drawn accurately

PQR is a triangle and S is the mid point of PR.
T and U are points on PQ and QR respectively such that ST is parallel to RQ and SU is parallel to PQ.
Prove that triangle PST is congruent to triangle SRU and state which of the conditions for congruency applies.

[3]

9) The diagram shows a rectangle *ABCD*.

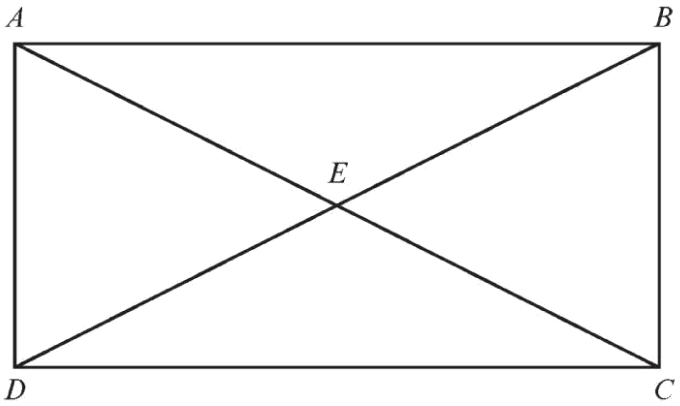


Diagram not drawn to scale

Select 3 **different** pairs of congruent triangles shown in the diagram above and then complete the sentences below for your 3 selections.

Triangle ..... is congruent to triangle .....

Triangle ..... is congruent to triangle .....

Triangle ..... is congruent to triangle .....

[3]

10)

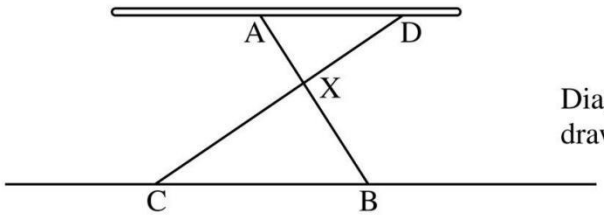


Diagram not drawn accurately

The diagram shows the side view of an ironing board standing on horizontal ground.
The top of the ironing board is parallel to the ground. The legs AB and CD meet at X.

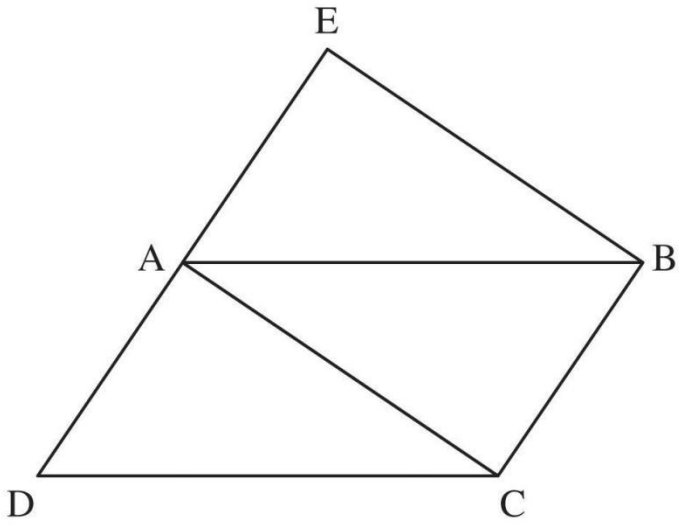
(a) Prove that the triangles AXD and BXC are similar.

[2]

(b) CX = 63 cm, DX = 42 cm and AD = 48 cm. Calculate the distance between the feet, CB.

Answer _____ cm [3]

11)



ABCD is a parallelogram and A is the midpoint of the straight line DE.
Prove that the triangles ADC and EAB are congruent. [3]

12) Triangle ABC is an isosceles triangle with $\hat{ABC} = \hat{ACB}$.

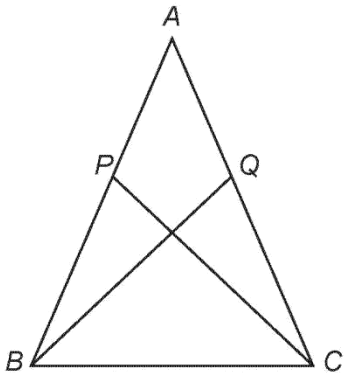


Diagram not drawn to scale

P and Q are points on AB and AC respectively such that $AP = AQ$.

Prove that triangle ABQ is congruent to triangle ACP.
You must give reasons for each step of your proof. [4]

.....

.....

.....

.....

.....

.....

.....

.....

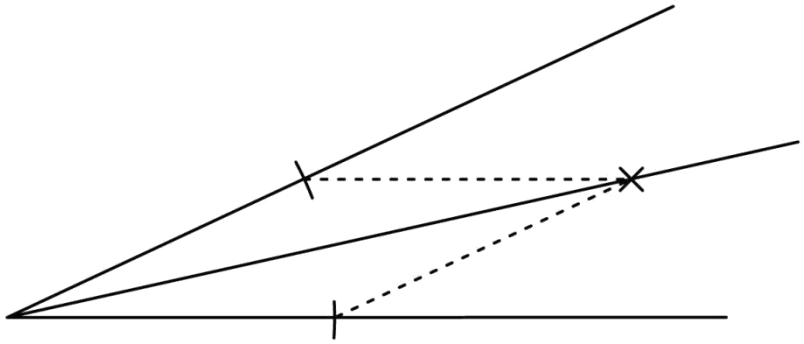
.....

.....

.....

.....

13)

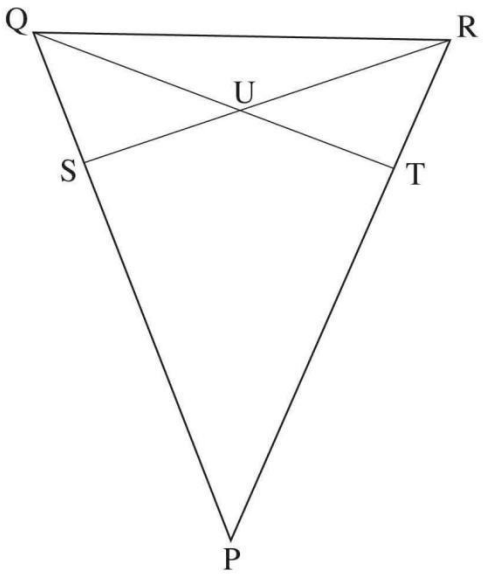


Prove, by using congruent triangles, that the construction method for bisecting an angle does in fact produce two equal angles at the bisection point. [3]

14) PQR is an isosceles triangle in which PQ = PR.

S and T are points on PQ and PR such that PS = PT.

U is the point of intersection of TQ and RS.



By first proving that PQT and PRS are congruent, prove that triangle QUR is isosceles.

Show all your working clearly.

[4]