

Name:

Date:

# Congruent Triangles

## GCSE

Edexcel  
Mathematics  
Grade (9-1)

Mark

Score (%)

<hr/> 45
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### Materials

For this paper you must have:

- Ruler
- Pencil, Rubber, Protractor and Compass
- Scientific calculator, which you are expected to use when appropriate

### Instructions

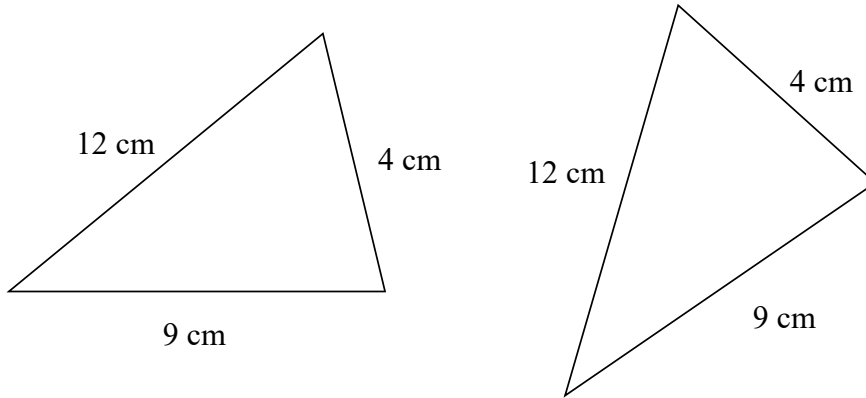
- Answer all questions
- Answer questions in the space provided
- All working must be shown
- Do all rough work in this book. Cross out any rough work you don't want to be marked

### Information

- The marks for the questions are shown in brackets

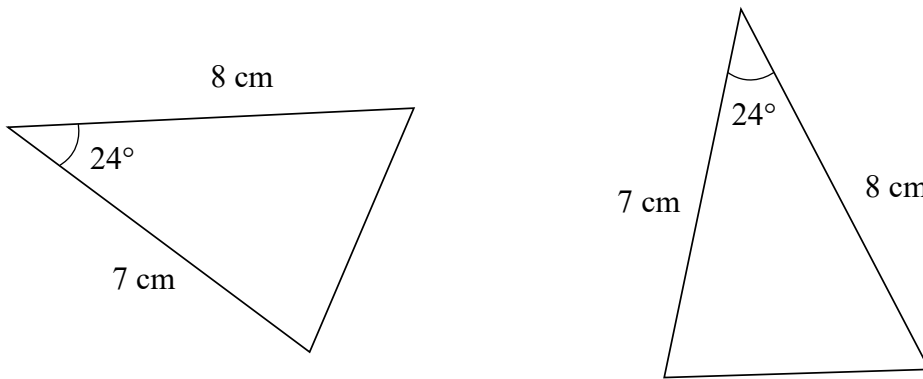
1 The following pairs of triangles are congruent, state the condition that shows they are congruent.

(a)



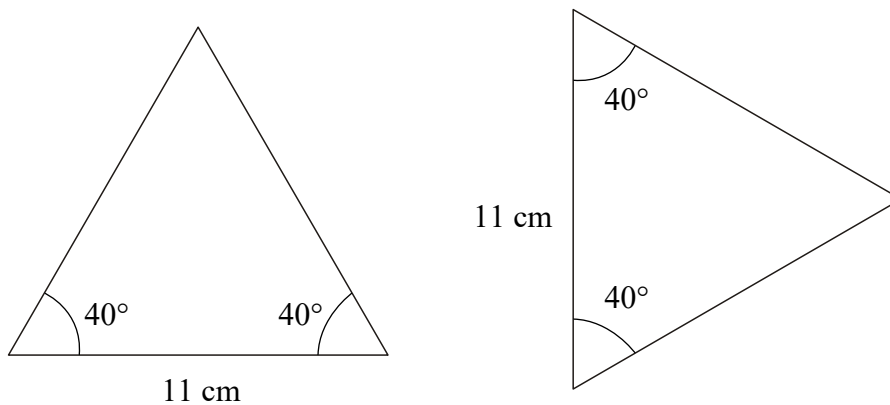
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(b)



.....

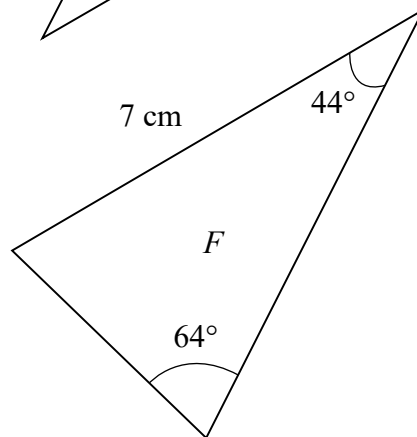
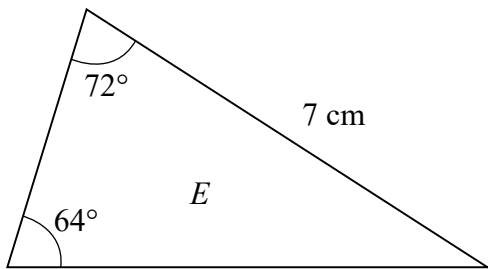
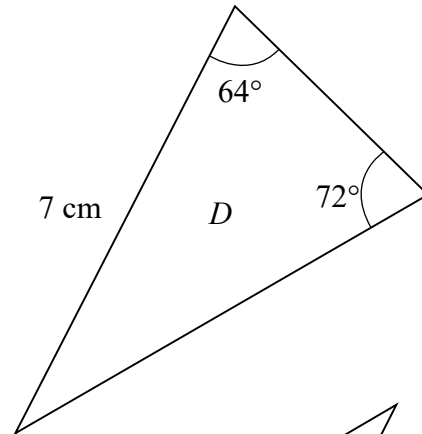
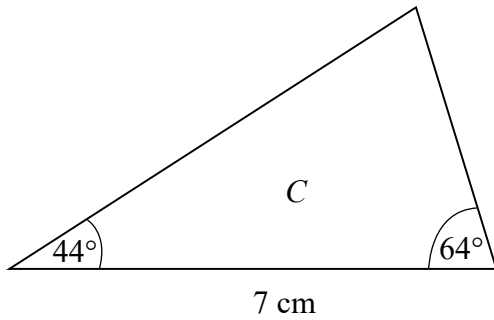
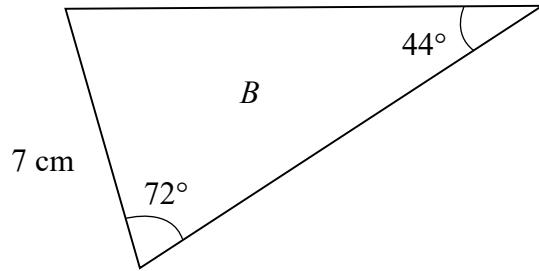
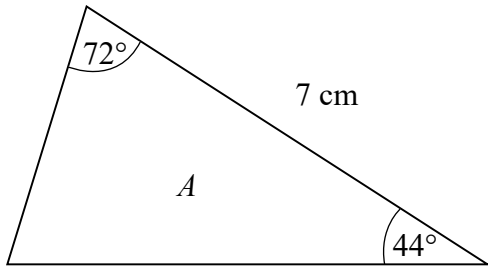
(c)



.....

(Total for question 1 is 3 marks)

2 Shown below are six triangles that are not drawn accurately.



Which two triangles are congruent to triangle A?

..... and .....  
**(Total for question 2 is 2 marks)**

- 3 In triangle  $ABC$ ,  $AB = 7\text{cm}$ ,  $\angle BAC = 50^\circ$  and  $\angle ABC = 35^\circ$   
In triangle  $DEF$ ,  $EF = 7\text{cm}$ ,  $\angle DEF = 35^\circ$  and  $\angle DFE = 50^\circ$

Are triangles  $ABC$  and  $DEF$  congruent? If they are, state the condition.

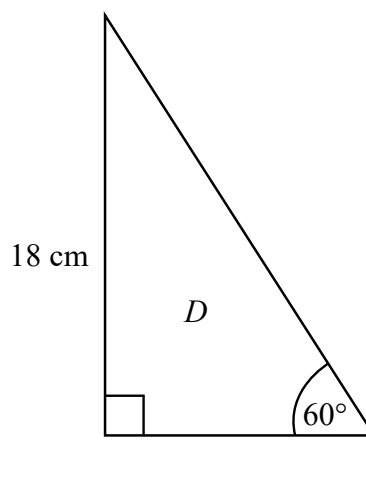
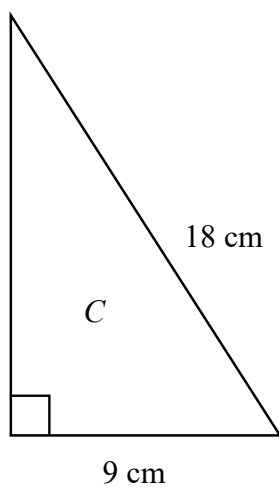
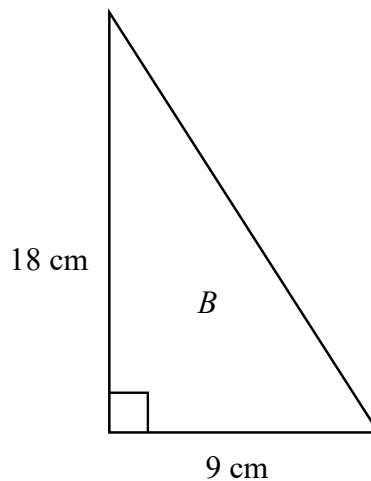
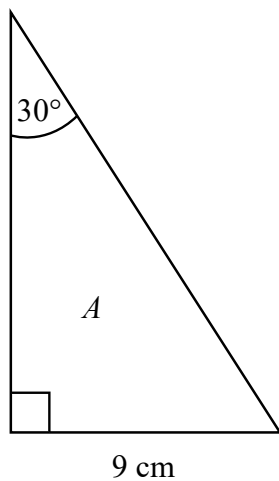
(Total for question 3 is 3 marks)

- 4 In triangle  $MNO$ ,  $\angle MNO = 50^\circ$ ,  $\angle NOM = 60^\circ$  and  $\angle OMN = 70^\circ$   
In triangle  $PQR$ ,  $\angle PQR = 50^\circ$ ,  $\angle QRP = 60^\circ$  and  $\angle RPQ = 70^\circ$

Are triangles  $MNO$  and  $PQR$  congruent? If they are, state the condition.

(Total for question 4 is 3 marks)

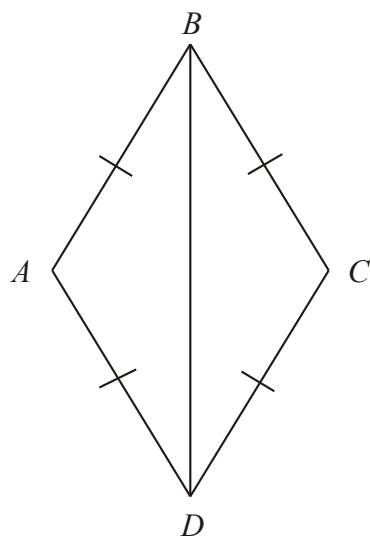
5 Two of the triangles below are congruent.



Identify the two congruent triangles and explain your answer.

(Total for question 5 is 4 marks)

6

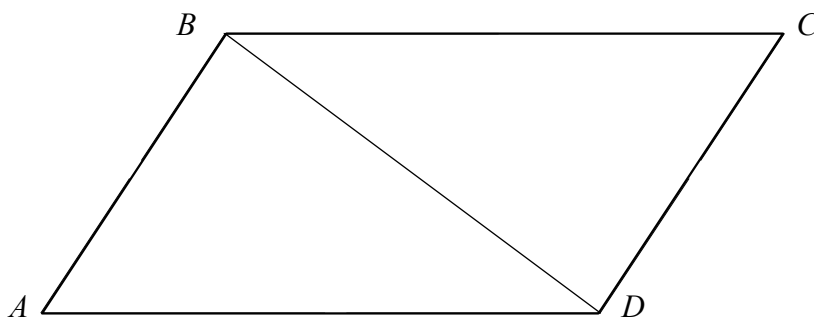


In the diagram,  $AB = BC = CD = DA$ .

Prove that triangle  $ADB$  is congruent to triangle  $CDB$ .

(Total for question 6 is 4 marks)

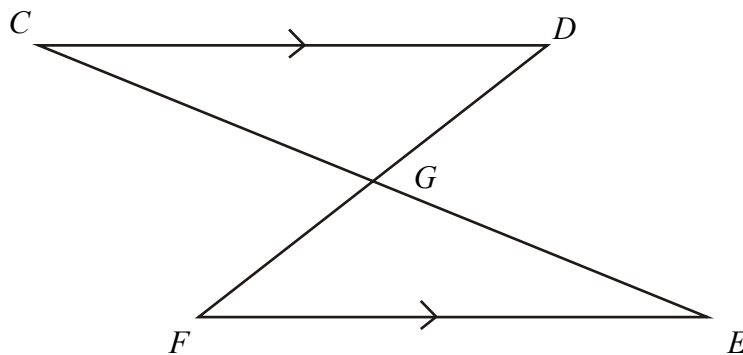
7  $ABCD$  is a parallelogram.



Prove that triangles  $ABD$  and  $BCD$  are congruent.

(Total for question 7 is 4 marks)

8



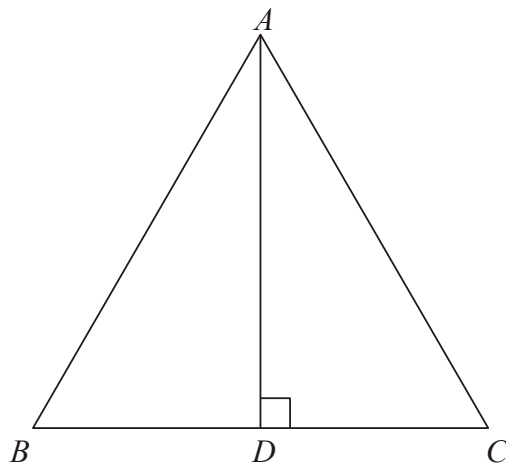
In the diagram, the lines  $CE$  and  $DF$  intersect at  $G$ .  
 $CD$  and  $FE$  are parallel and  $CD = FE$ .

Prove that triangles  $CDG$  and  $EFG$  are congruent.

(Total for question 8 is 4 marks)



9



$ABC$  is an equilateral triangle.

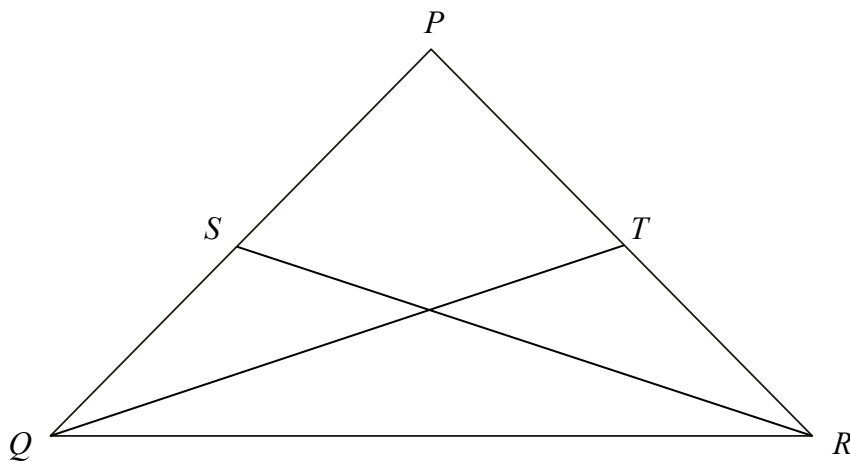
$D$  lies on  $BC$ .

$AD$  is perpendicular to  $BC$ .

Prove that triangle  $ADC$  is congruent to triangle  $ADB$ .

(Total for question 9 is 4 marks)

10



$PQ = PR$ .

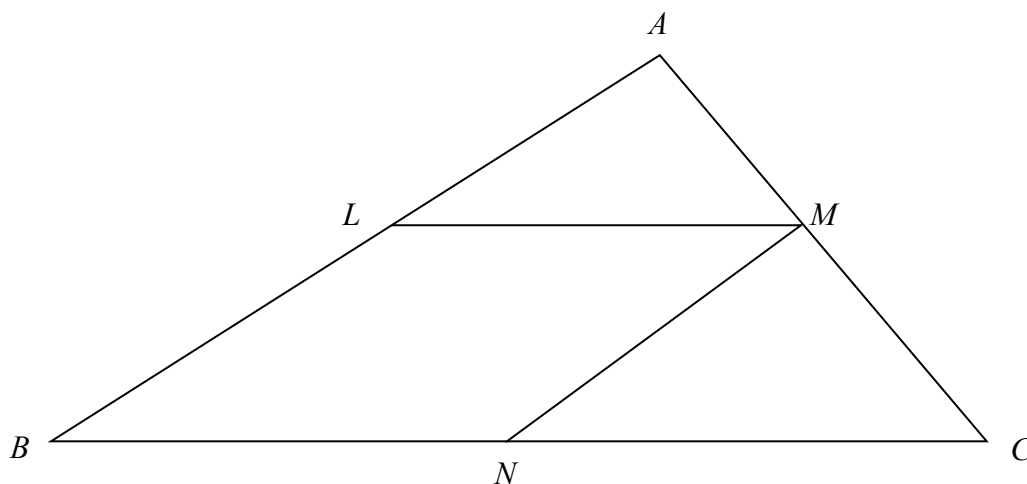
$S$  is the midpoint of  $PQ$ .

$T$  is the midpoint of  $PR$ .

Prove triangle  $QTR$  is congruent to triangle  $RSQ$ .

(Total for question 10 is 4 marks)

11



The diagram shows a triangle  $ABC$ .

$LMNB$  is a parallelogram where

$L$  is the midpoint of  $AB$ ,

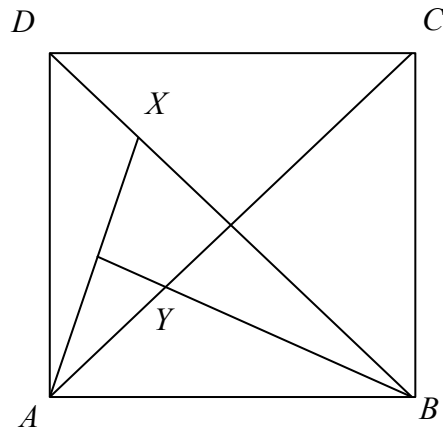
$M$  is the midpoint of  $AC$ , and  $N$  is the midpoint of  $BC$ .

Prove that triangle  $ALM$  and triangle  $MNC$  are congruent.

You must give reasons for each stage of your proof.

(Total for question 11 is 4 marks)

12



$ABCD$  is a square,  $X$  is a point in the diagonal  $BD$  and the perpendicular from  $B$  to  $AX$  meets  $AC$  in  $Y$ .

Prove that triangles  $AXD$  and  $AYB$  are congruent.

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(Total for question 12 is 6 marks)