Name:……

Total Marks:……

GCSE (9-1) Grade 5 Congruent Triangles

Instructions

Use **black** ink or ball-point pen.
Fill in the boxes at the top of this page with your name.
Answer **all** questions.
Answer the questions in the spaces provided
- there may be more space than you need.

Show all your working out

Information

The marks for **each** question are shown in brackets.
use this as a guide as to how much time to spend on each question.
Questions labelled with an **asterisk** (*) are ones where the quality of your written communication will be assessed

Advice

Read each question carefully before you start to answer it
Attempt every question
Check your answers if you have time at the end

1.

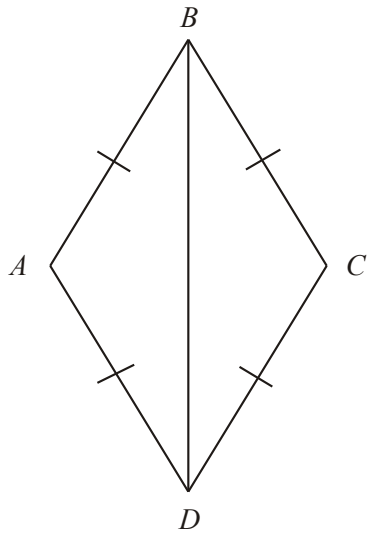

Diagram **NOT** accurately drawn

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

Prove that triangle ADB is congruent to triangle CDB.

(Total 3 marks)

2.

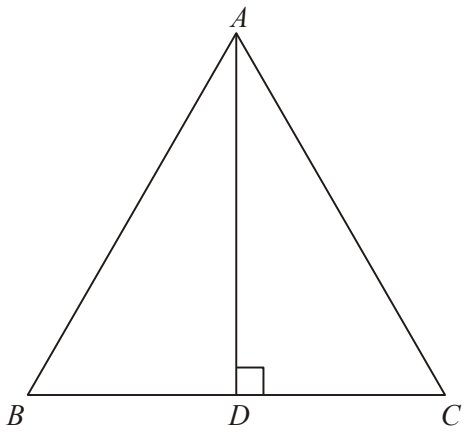

Diagram **NOT** accurately drawn

ABC is an equilateral triangle.
D lies on *BC*.
AD is perpendicular to *BC*.

(a) Prove that triangle *ADC* is congruent to triangle *ADB*.

(3)

(b) Hence, prove that $BD = \frac{1}{2}AB$.

(2)
(Total 5 marks)

3.

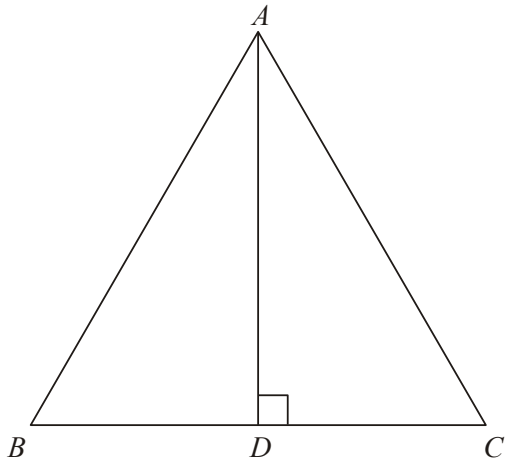

Diagram **NOT** accurately drawn

ABC is an equilateral triangle.
D lies on *BC*.
AD is perpendicular to *BC*.

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

(Total 3 marks)

4.

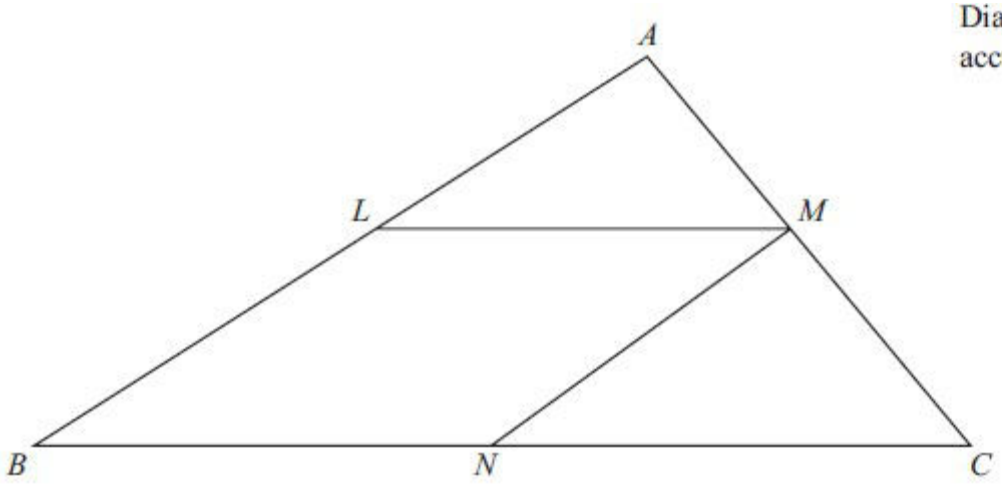

Diagram **NOT** accurately drawn

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 3 marks)

5.

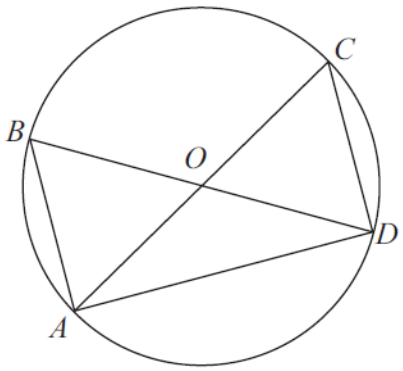

Diagram **NOT** accurately drawn

AOC and *BOD* are diameters of a circle, centre *O*.

Prove that triangle *ABD* and triangle *DCA* are congruent.

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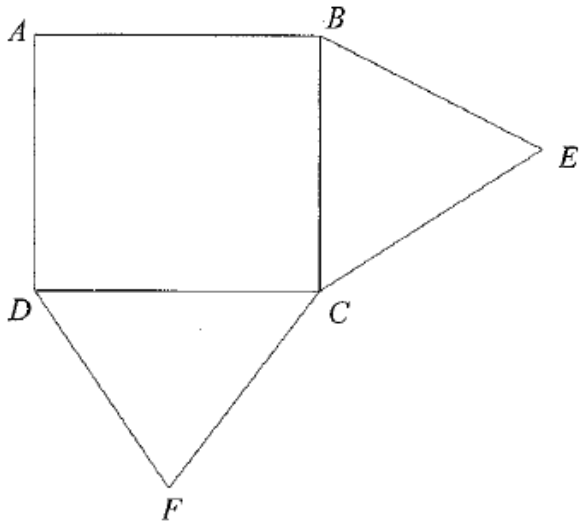
(Total 3 marks)

6.

Diagram **NOT** accurately drawn



ABCD is a square.
BEC and *DCF* are equilateral triangles.

(a) Prove that triangle *ECD* is congruent to triangle *BCF*.

(3)

G is the point such that *BEGF* is a parallelogram.

(b) Prove that $ED = EG$

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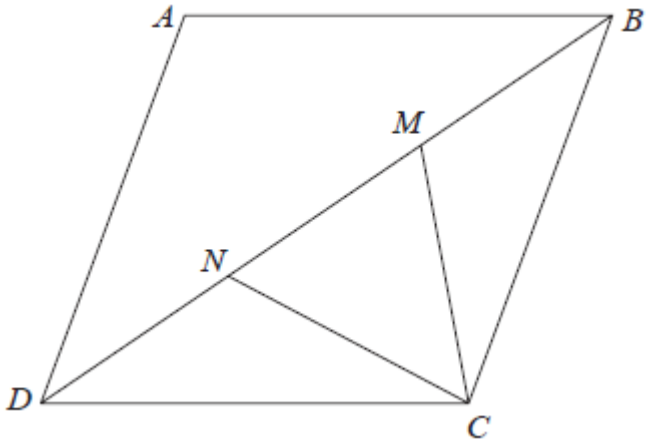
(Total 3 marks)

7. *ABCD* is a rhombus.



M and *N* are points on *BD* such that *DN = MB.*

Prove that triangle *DNC* is congruent to triangle *BMC*.

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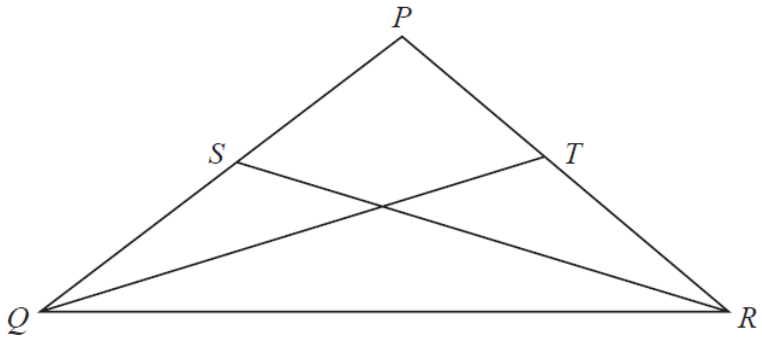
(Total 3 marks)

8.



$PQ = PR$.

S is the midpoint of PQ.

T is the midpoint of PR.

Prove triangle QTR is congruent to triangle RSQ.

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(Total 3 marks)