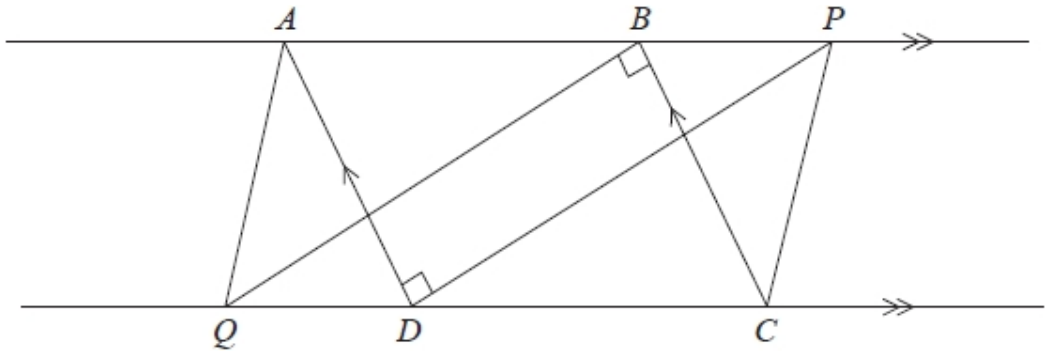
G309 Congruent triangles

Q1.



ABCD is a parallelogram.
ABP and *QDC* are straight lines.
Angle *ADP* = angle *CBQ* = 90°

(a) Prove that triangle *ADP* is congruent to triangle *CBQ*.

(3)

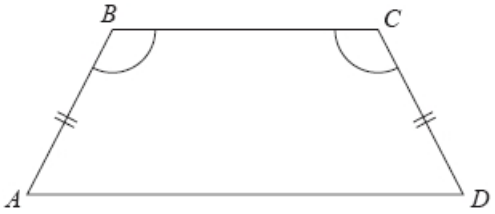
(b) Explain why *AQ* is parallel to *PC*.

(2)

(Total for question = 5 marks)

Q2.

ABCD is a quadrilateral.



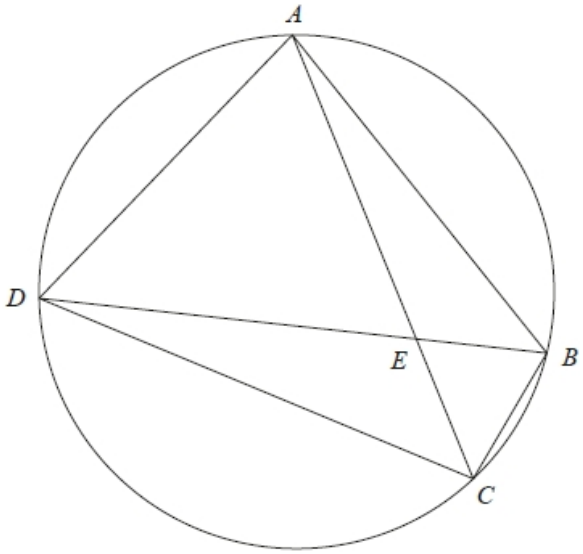
AB = *CD*.
Angle *ABC* = angle *BCD*.

Prove that *AC* = *BD*.

(Total for question = 4 marks)

Q3.

A, *B*, *C* and *D* are four points on a circle.



AEC and *DEB* are straight lines.

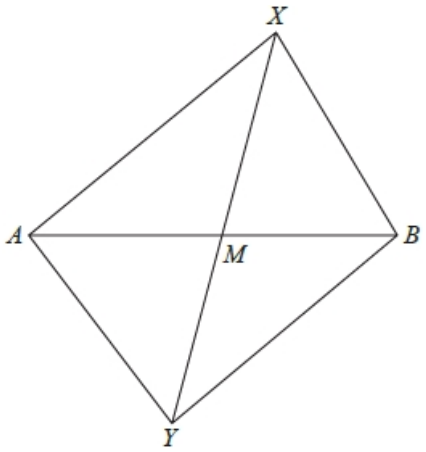
Triangle *AED* is an equilateral triangle.

Prove that triangle *ABC* is congruent to triangle *DCB*.

(Total for question = 4 marks)

Q4.

The diagram shows a quadrilateral *XBYA*.



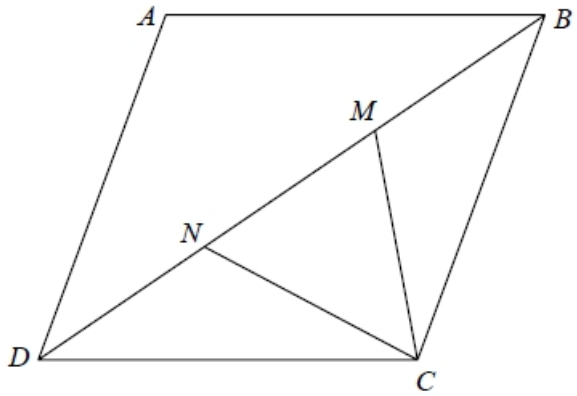
The diagonals *AB* and *XY* intersect at the point *M*.

Given that the area of triangle *AXB* is equal to the area of triangle *AYB*, prove that *XY* is bisected by *AB*.

(Total for question = 4 marks)

Q5.

ABCD is a rhombus.



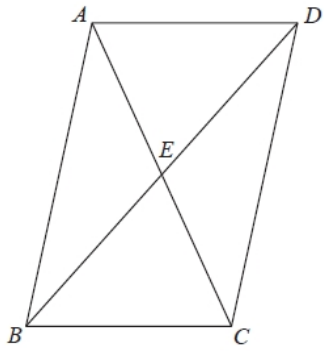
M and *N* are points on *BD* such that *DN* = *MB*.

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

(Total for question = 3 marks)

Q6.

ABCD is a parallelogram.

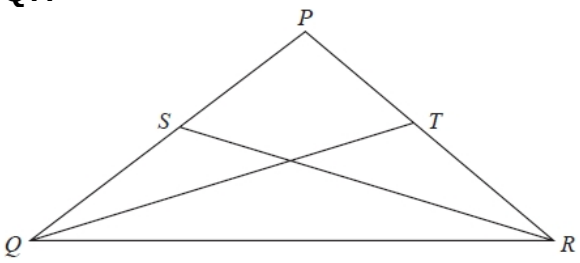


E is the point where the diagonals *AC* and *BD* meet.

Prove that triangle *ABE* is congruent to triangle *CDE*.

(Total for question = 3 marks)

Q7.



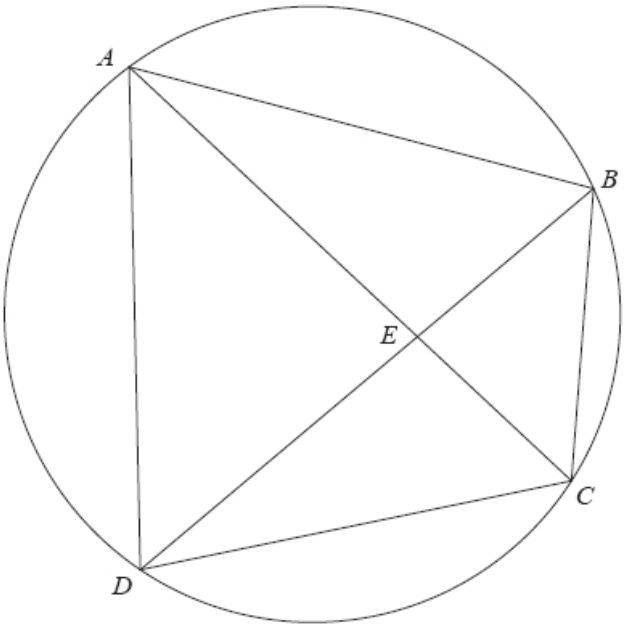
PQ = *PR*. *S* is the midpoint of *PQ*. *T* is the midpoint of *PR*.

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

(Total for question is 3 marks)

Q8.

A, *B*, *C* and *D* are four points on the circumference of a circle.



AEC and *BED* are straight lines.

Prove that triangle *ABE* and triangle *DCE* are similar.
You must give reasons for each stage of your working.

(Total for question = 3 marks)