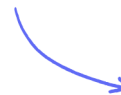


Congruence, Similarity & Geometrical Proof

Congruence / Congruent Triangles / Similarity / Similar Lengths / Geometrical Proof

Easy (7 questions)	/10
Medium (7 questions)	/14
Hard (7 questions)	/19
Total Marks	/43

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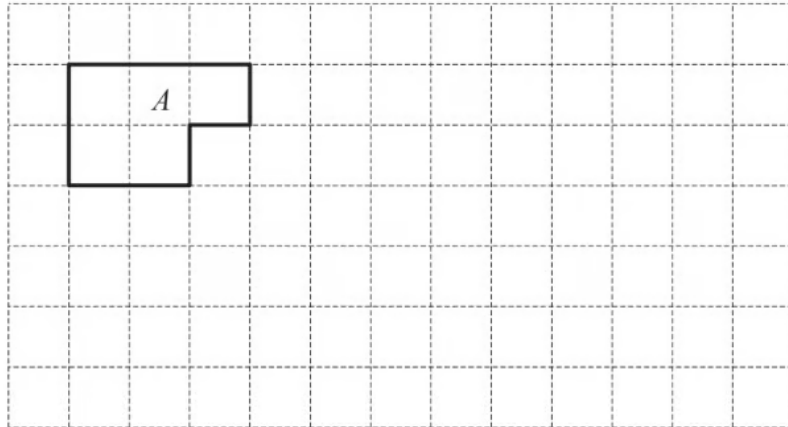
Easy Questions

1 Pick the word that describes two polygons that are the same shape and size.

- A. hexagon
- B. regular
- C. perpendicular
- D. congruent
- E. isosceles

(1 mark)

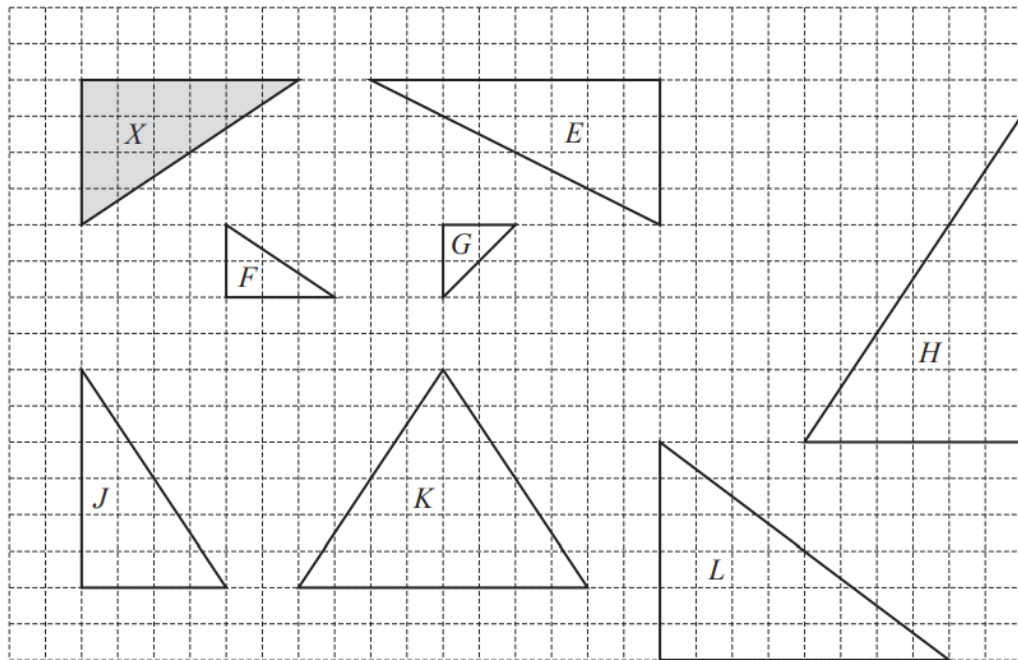
2



On the grid, draw a shape that is congruent to shape *A*.

(1 mark)

3



For the triangles shown on the grid, write down the letter of each triangle that is

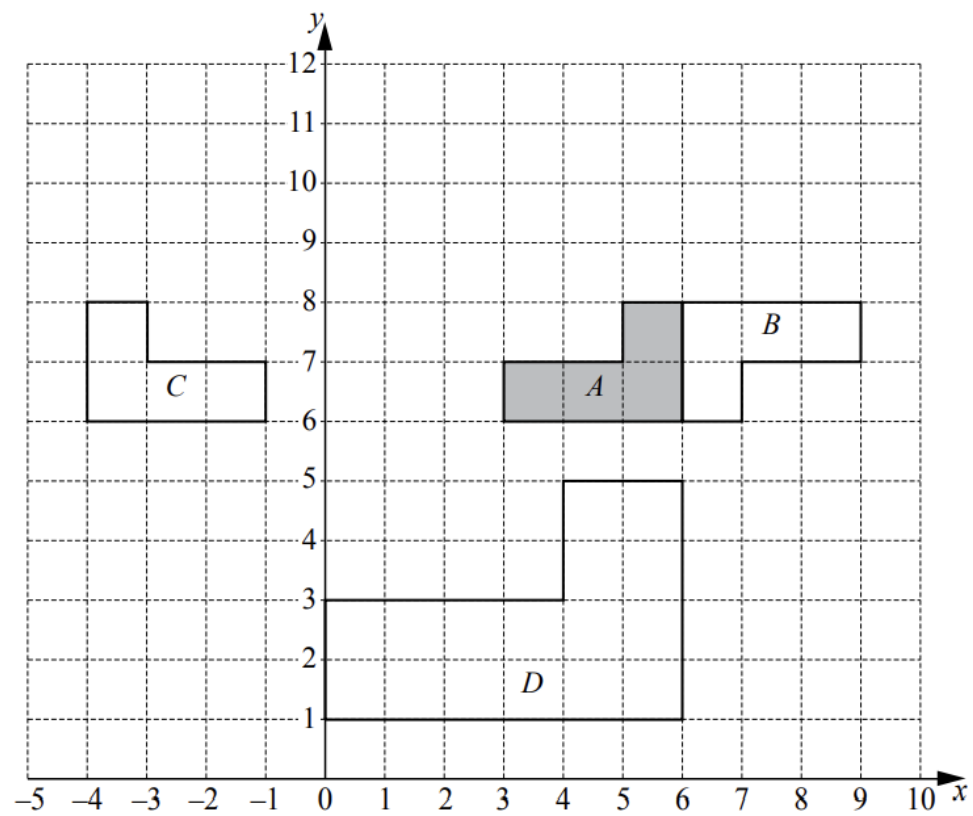
i) congruent to triangle X ,

[1]

ii) similar to triangle X .

[2]

(3 marks)



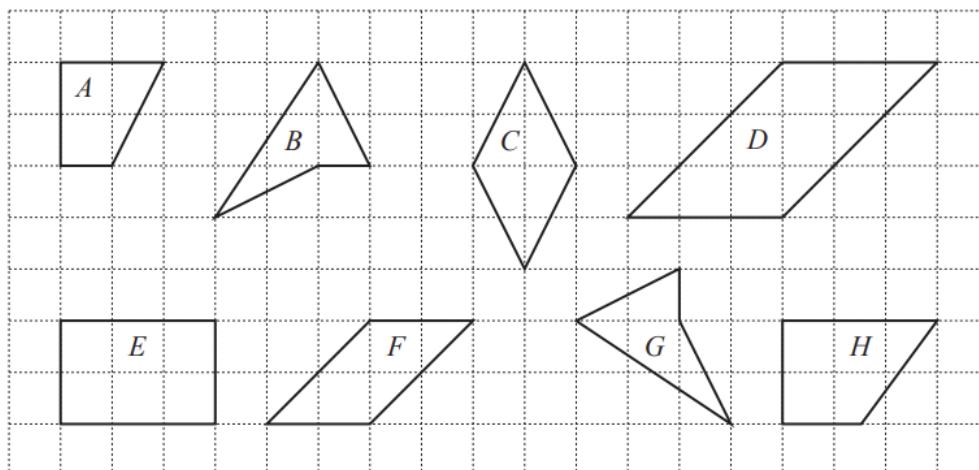
The diagram shows four shapes A , B , C and D .

Which shapes, if any, are congruent to shape D ?

Give a reason for your answer.

(1 mark)

5 (a)



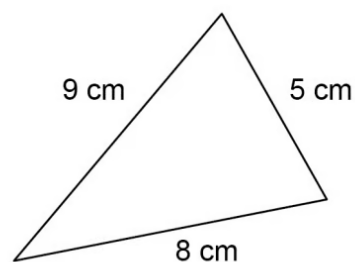
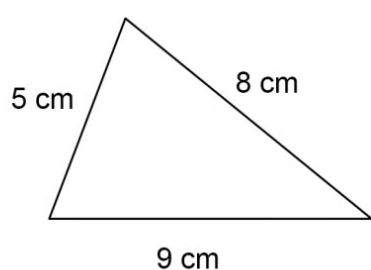
Quadrilaterals and are congruent.

(1 mark)

(b) Quadrilaterals and are similar.

(1 mark)

6



Not drawn accurately

Choose the reason why these triangles are congruent.

- A. ASA
- B. RHS
- C. SAS
- D. SSS

(1 mark)

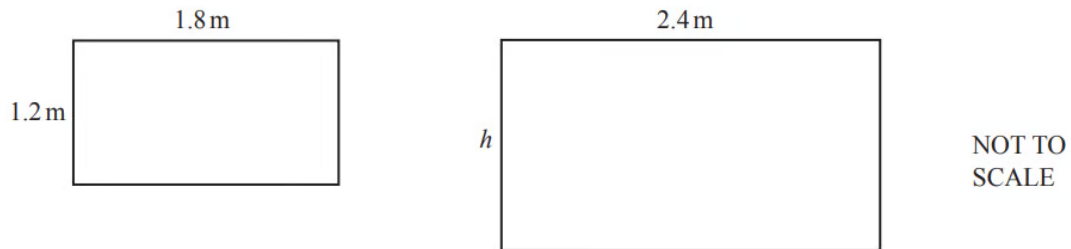
7 Which of these is not used to prove that triangles are congruent?

- A. SSS
- B. SAS
- C. AAA
- D. RHS

(1 mark)

Medium Questions

- 1 Soraya designs two mathematically similar flags.

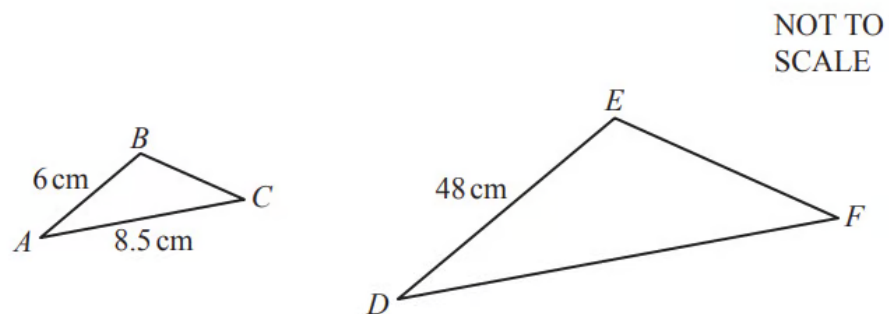


Calculate the height, h , of the larger flag.

$$h = \dots\dots\dots \text{ m}$$

(2 marks)

- 2 The diagram shows two similar triangles, ABC and DEF .

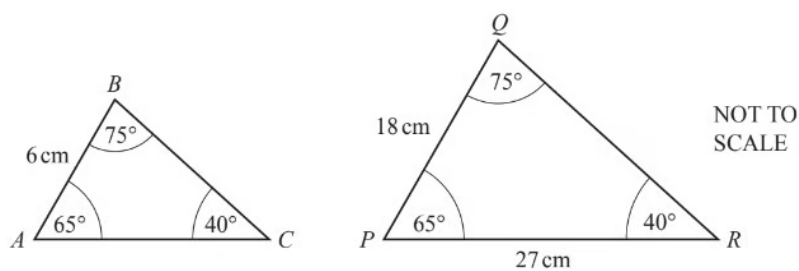


Calculate DF .

$$DF = \dots\dots\dots \text{ cm}$$

(2 marks)

3 (a)



Explain why triangle ABC and triangle PQR are similar.

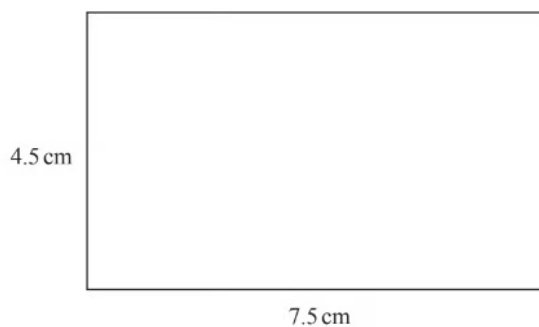
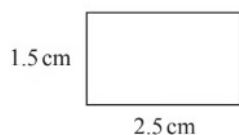
(1 mark)

(b) Find AC .

$AC = \dots\dots\dots\text{ cm}$

(2 marks)

4



i) Explain why these rectangles are mathematically similar.

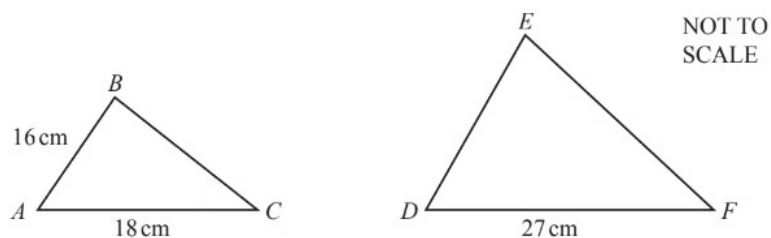
[1]

ii) How many times bigger is the area of the large rectangle than the area of the small rectangle?

[2]

(3 marks)

- 5 Triangle ABC and triangle DEF are similar.

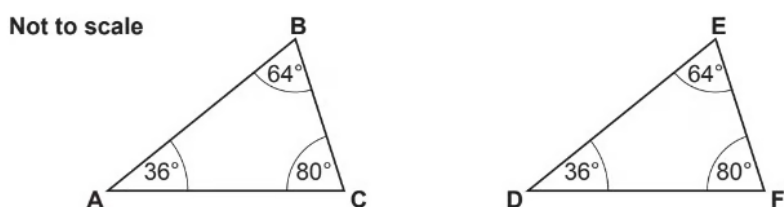


Find DE .

$DE = \dots\dots\dots\text{ cm}$ [2]

(2 marks)

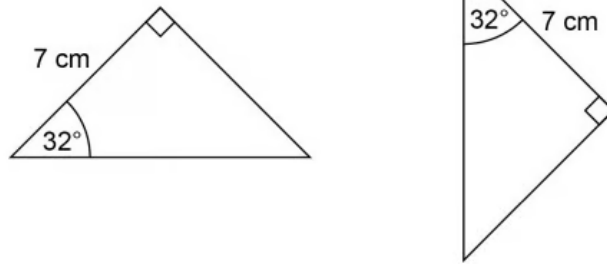
- 6 Are these two triangles definitely congruent?
Give a reason.



$\dots\dots\dots$ because $\dots\dots\dots$

(1 mark)

7



Not drawn
accurately

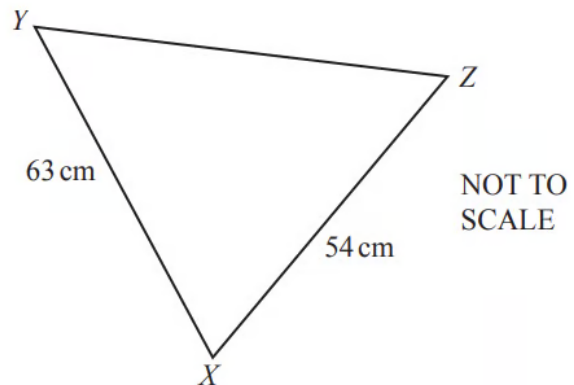
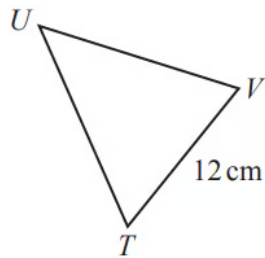
Choose the reason why these triangles are congruent.

- A.** SSS
- B.** SAS
- C.** ASA
- D.** RHS

(1 mark)

Hard Questions

1



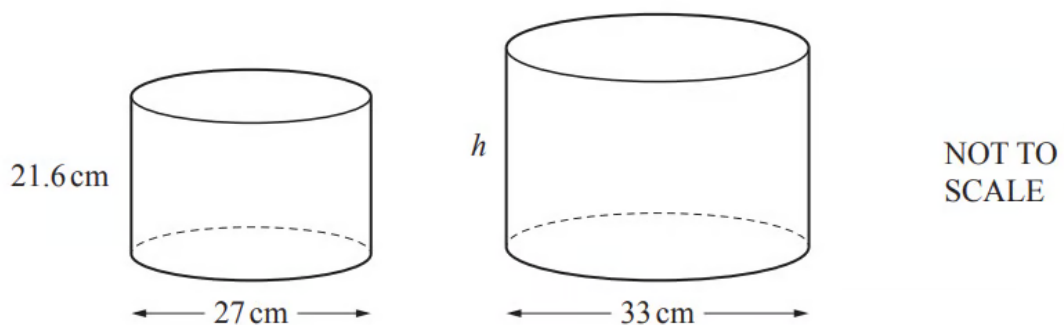
The diagram shows two similar triangles TUV and XYZ .

Calculate UT .

$UT = \dots\dots\dots\text{ cm}$

(2 marks)

2 The diagram shows two mathematically similar plant pots.



The smaller pot has height 21.6 cm and diameter 27 cm .

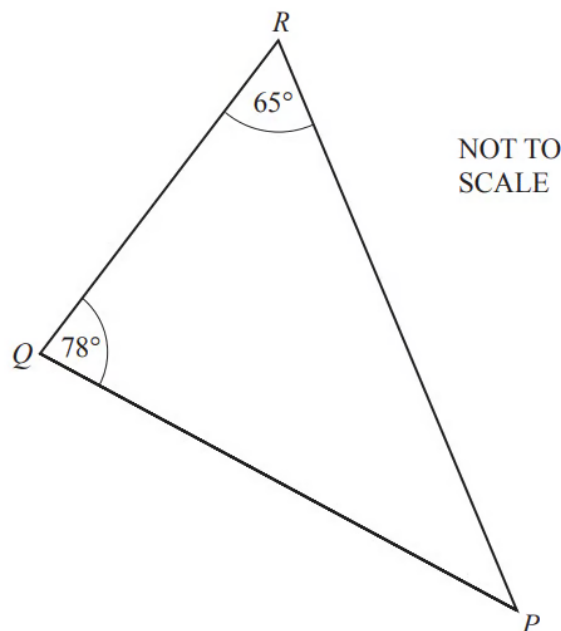
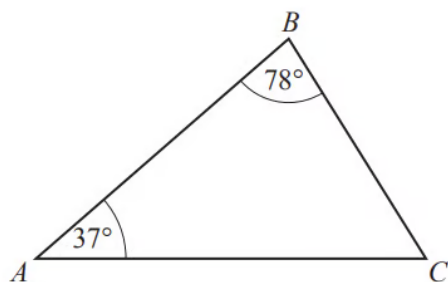
The larger pot has diameter 33 cm .

Find the height, h , of the larger pot.

$h = \dots\dots\dots$ cm

(2 marks)

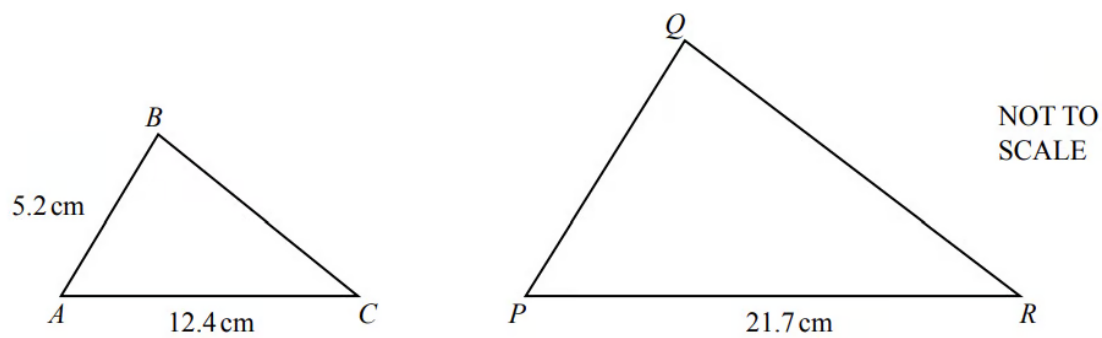
3



Explain why triangle ABC is similar to triangle PQR .

(2 marks)

4 Triangle ABC is similar to triangle PQR .

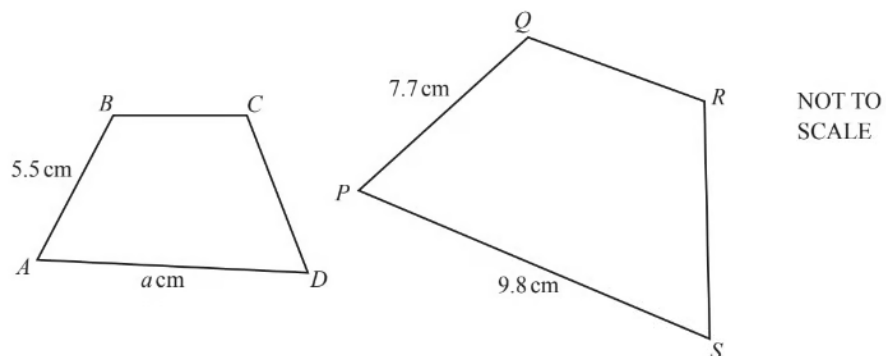


Find PQ .

$PQ = \dots\dots\dots\text{ cm}$

(2 marks)

5



Shape $ABCD$ is similar to shape $PQRS$.

Work out the value of a .

$a = \dots\dots\dots$

(2 marks)

6 (a)

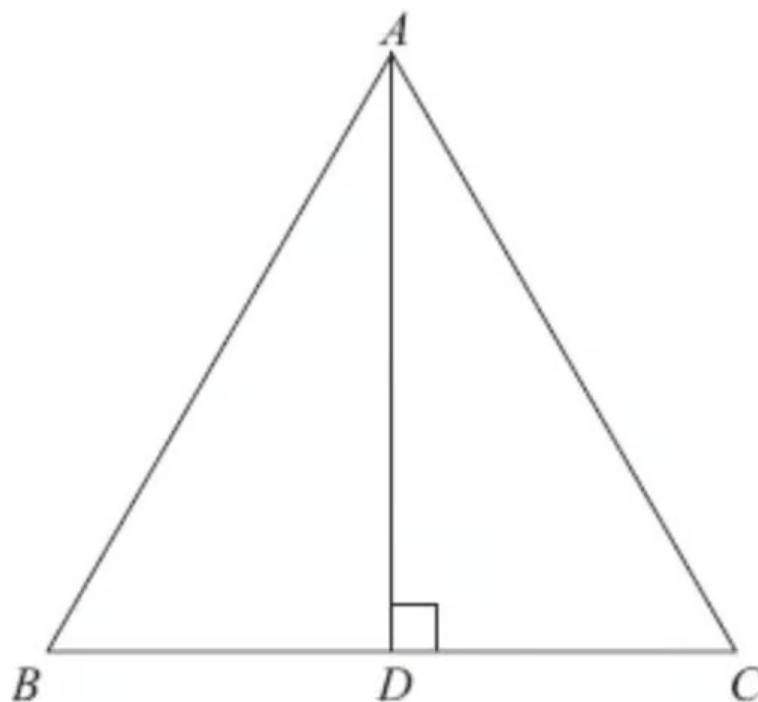


Diagram **NOT**
accurately drawn

ABC is an equilateral triangle.

D lies on BC .

AD is perpendicular to BC .

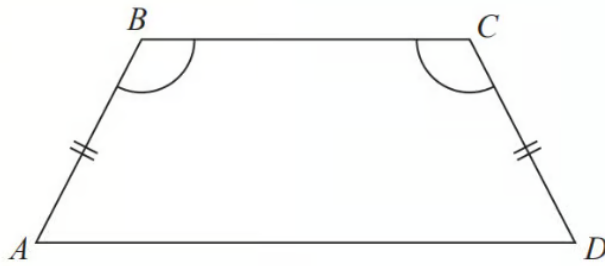
Prove that triangle ADC is congruent to triangle ADB .

(3 marks)

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

(2 marks)

7 $ABCD$ is a quadrilateral.



$AB = CD$. Angle
 $ABC = \text{angle } BCD$.

Prove that $AC = BD$.

(4 marks)