

## SAMPLE PAPER 2014 (SET F): PAPER 2

### QUESTION 6A (25 MARKS)

#### Question 6A (a)

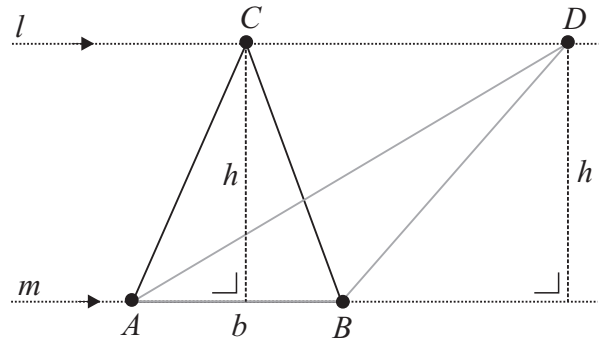
*Explanation:* A theorem formed by interchanging the hypothesis and conclusion of a given theorem.

#### Question 6A (b)

*Statement:* ‘Congruent triangles have equal areas.’

*Converse:* ‘Triangles with equal areas are congruent.’

This statement is false.



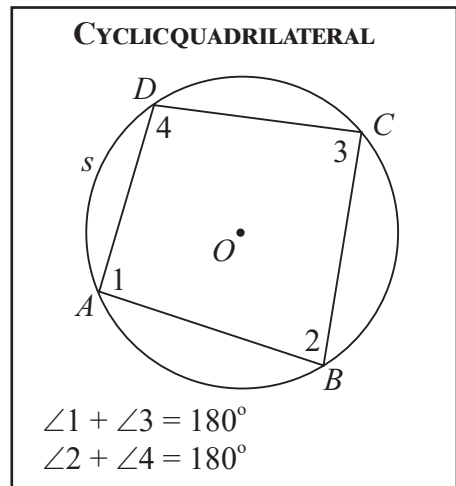
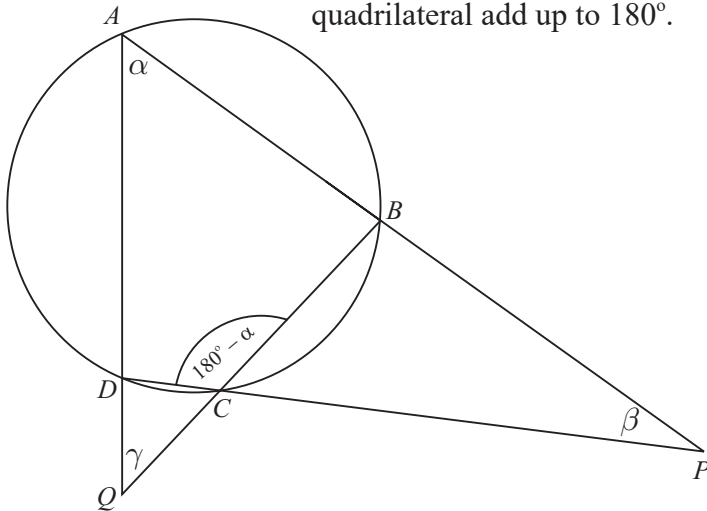
Draw two parallel lines  $l$  and  $m$ .

Draw a line  $[AB]$  which forms the base of two triangles,  $ABC$  and  $ABD$ .

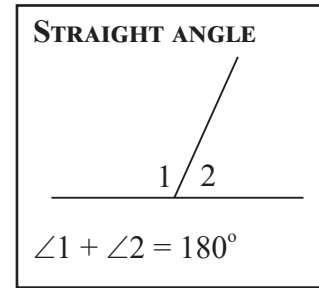
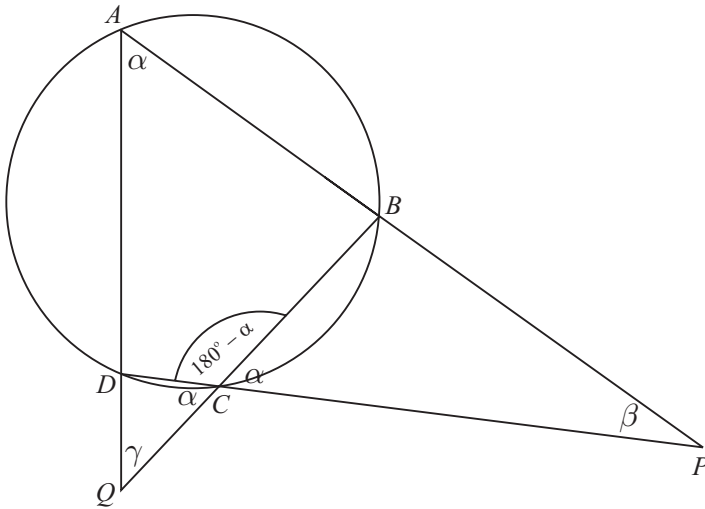
Each triangle drawn has the same base  $b$  and height  $h$  and therefore, each triangle has the same area. However, it is obvious that these triangles are **not** congruent.

### QUESTION 6B (25 MARKS)

$|\angle DCB| = 180^\circ - \alpha \leftarrow$  Opposite angles of a cyclic quadrilateral add up to  $180^\circ$ .

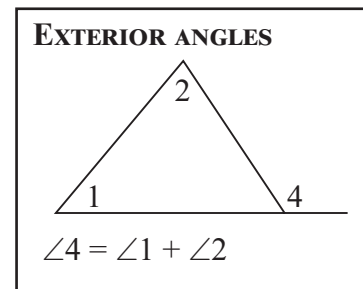
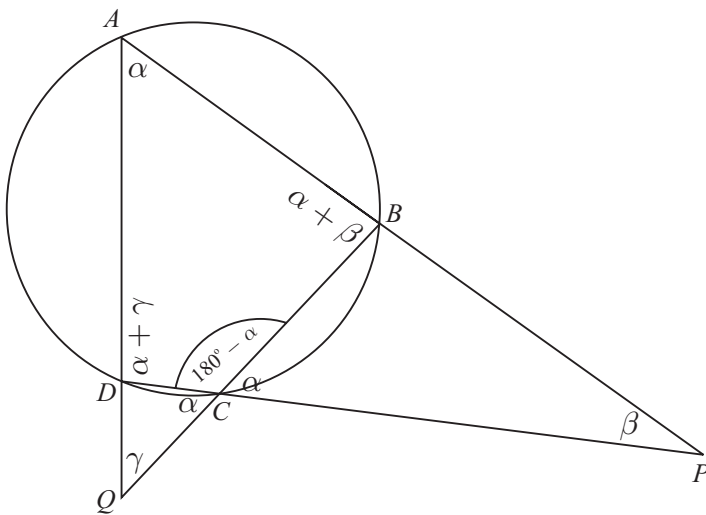


$|\angle DCQ| = |\angle PCB| = \alpha \leftarrow$  Straight angle



$|\angle ADC| = \alpha + \gamma \leftarrow$  This exterior angle is equal to the sum of the 2 interior angles in  $\triangle DCQ$ .

$|\angle ABC| = \alpha + \beta \leftarrow$  This exterior angle is equal to the sum of the 2 interior angles in  $\triangle BPC$ .



$\alpha + \beta + \alpha + \gamma = 180^\circ \leftarrow$  Opposite angles of a cyclic quadrilateral add up to  $180^\circ$ .

$$2\alpha + \beta + \gamma = 180^\circ$$

$$\beta + \gamma = 180^\circ - 2\alpha$$


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