

**Question 6**

**(25 marks)**

- (a) Let  $\triangle ABC$  be a triangle. Prove that if a line  $l$  is parallel to  $BC$  and cuts  $[AB]$  in the ratio  $s : t$ , where  $s, t \in \mathbb{N}$ , then it also cuts  $[AC]$  in the same ratio.

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*Diagram:*

*Given:*

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*To Prove:*

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*Construction:*

Proof:

(b) In the triangle  $ABC$  shown below:

$|\angle CAB| = 90^\circ$ ,  $|AX| = 4 \text{ cm}$ ,  $|AY| = 3 \text{ cm}$ ,  $XY \parallel BC$ ,  $XZ \parallel AC$ ,  
and  $|AX| : |XB| = 1 : 2$ .

Find  $|BZ|$ .

