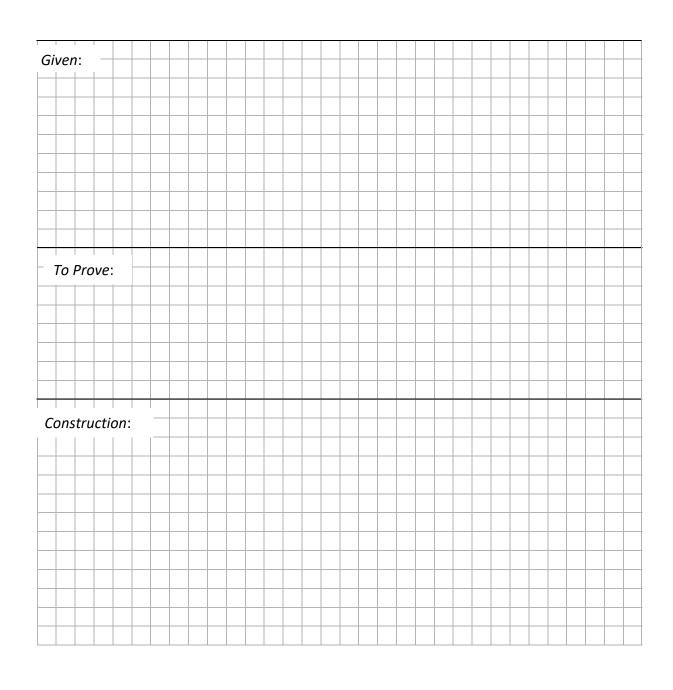## Question 6 (25 marks)

(a) Let ΔABC 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.

Diagram:

Given:

To Prove:

Construction:

Proof:

(b) In the triangle ABC shown below:

$|\angle CAB| = 90°$, $|AX| = 4$ cm, $|AY| = 3$ cm, $XY \parallel BC$, $XZ \parallel AC$,

and $|AX| : |XB| = 1 : 2$.

Find $|BZ|$.