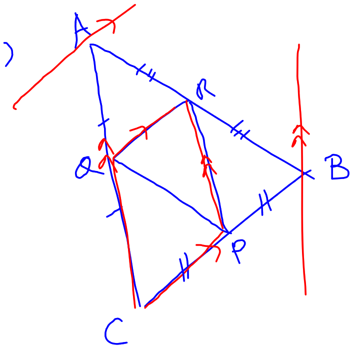
6c)



$A_{ARPQ} : A_{\Delta ABC}$

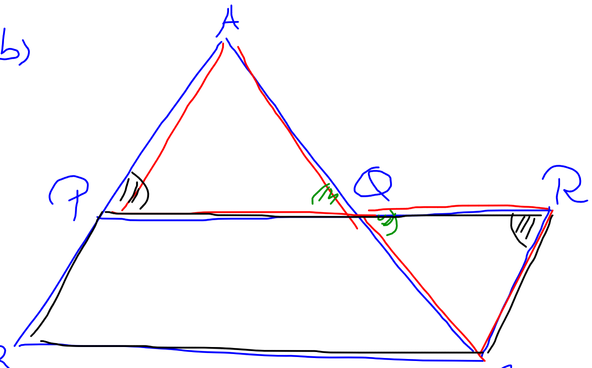
$A_{\Delta CPQ} : A_{\Delta ABC}$

$1 : 4$

$\therefore A_{\Delta RPQ} : A_{\Delta ABC}$

$2 : 4 = 1 : 2$

9 b)



$\cancel{\frac{PQ}{BC} = \frac{k}{k+l}}$

$$\frac{AP}{BP} = \frac{AQ}{QC} = \frac{k}{l} = \frac{PQ}{QR}$$

$\angle AQP = \angle RQC$ (vertically opposite $\angle$'s)

$\frac{AQ}{QC} = \frac{PQ}{QR} = \frac{k}{l}$ (given)

$\therefore \triangle AQP \,|||\, \triangle CQR$ (SAS, ratio $k:l$)

$\frac{AP}{PB} = \frac{k}{l}$ (given)

$\frac{AP}{RC} = \frac{k}{l}$ (ratio sides in $|||$ $\triangle$'s)

$\therefore PB = RC$

$\angle APR = \angle QRC$ (matching $\angle$'s in $|||$ $\triangle$'s)

$AB \parallel RC$ (alternate $\angle$'s $=$)

PRCB is $\parallel$gram (pair sides $=$ and $\parallel$)

$$\frac{PQ}{BC} = \frac{PQ}{PR}$$

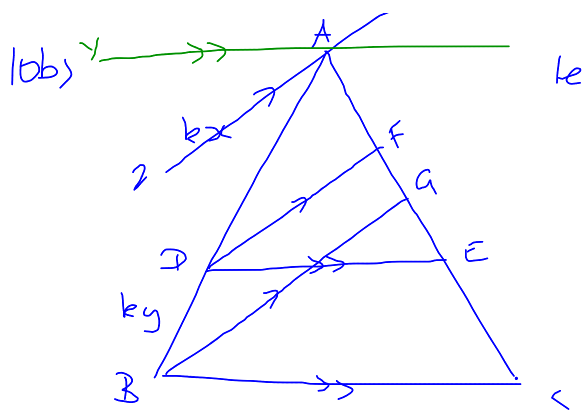
(BC = PR, opposite sides ||gram =)

$$\frac{PQ}{QR} = \frac{k}{\lambda}$$

$$\frac{PQ}{BC} = \frac{PQ}{PQ+QR}$$

$$= \frac{k}{k+\lambda}$$

10b)



let $AD : DB$ be $x : y$

construct $ZA \parallel DF \parallel BG$

$$\frac{AF}{AG} = \frac{AD}{AB}$$

$$= \frac{x}{x+y}$$

construct $YA \parallel DE \parallel BC$

$$\frac{AD}{AB} = \frac{AE}{AC}$$

$$\frac{x}{x+y} =$$

$$\therefore \frac{AD}{AB} = \frac{AE}{AC}$$

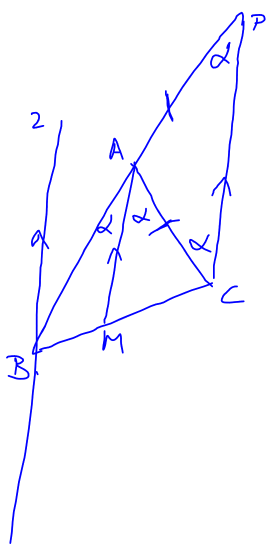
$\angle A$ is common

$\therefore \triangle ADE \parallel\!\mid \triangle ABC$ (SAS, ratio $x : x+y$)

$$\therefore \frac{DE}{BC} = \frac{x}{x+y}$$ (ratio sides in $\parallel\!\mid \triangle$'s)

$$\frac{AF}{AG} = \frac{DE}{BC}$$

1bb)



$\boxed{BM : MC = BA : AC}$

construct $BZ \parallel MA \parallel PC$

$\frac{BA}{AP} = \frac{BM}{MC}$ (ratio of intercepts of $\parallel$ lines)

$AC = AP$ (proven in a)

$\therefore \frac{BA}{AC} = \frac{BM}{MC}$