

1.87

6. ① $\triangle BRC \sim \triangle AQC$

$\angle BCR = \angle ACQ$

$\angle BCR - \angle ACR = \angle ACQ - \angle ACR$

$\angle ACB = \angle QCR$

② $\triangle APB \sim \triangle BRC \sim \triangle AQC$

$\frac{BP}{RB} = \frac{AB}{BC}$

$\angle PBA = \angle RBC \rightarrow \angle PBA + \angle ABR = \angle RBC + \angle ABR$

$\triangle PBR \sim \triangle ABC$ (S.S.S) \Rightarrow

$\left. \begin{aligned} \frac{BC}{AC} &= \frac{RC}{QC} \\ \angle BAC &= \angle RCQ \end{aligned} \right\} \triangle ABC \sim \triangle QCR$

$\angle BPA = \alpha = \angle RCQ = \angle PBR$

$\angle ACB = \beta$

$\angle RCQ = \alpha + \beta = \angle RBC = \angle PBA = \angle PAB = \angle ACQ = \angle CAQ$

$\angle APB = \angle BRC = 180 - 2\alpha - 2\beta = \angle AQC \rightarrow \angle RQC = 180 - 3\alpha - 2\beta$

$\angle AQP = \angle AQC - \angle RQC = \alpha$

$\angle AQR = \alpha = \angle PRB \Rightarrow PR \parallel AQ$

$\angle RQC = 180 - 3\alpha - 2\beta = \angle BAC$

$\angle PAQ + \angle AQR = (\alpha + \beta) + (180 - 3\alpha - 2\beta) + (\alpha + \beta) + \alpha = 180^\circ$

$\Rightarrow PA \parallel RQ \Rightarrow$ *trapezium* $PRQA$