Q5 ***ABCD*** **is a square of length = 1.** ***P*** **and** ***Q*** **are points on** ***AB*****,** ***AQ*** **respectively such that the perimeter of** $\Delta APQ = 2$**. Find** $\angle PCQ$**.**

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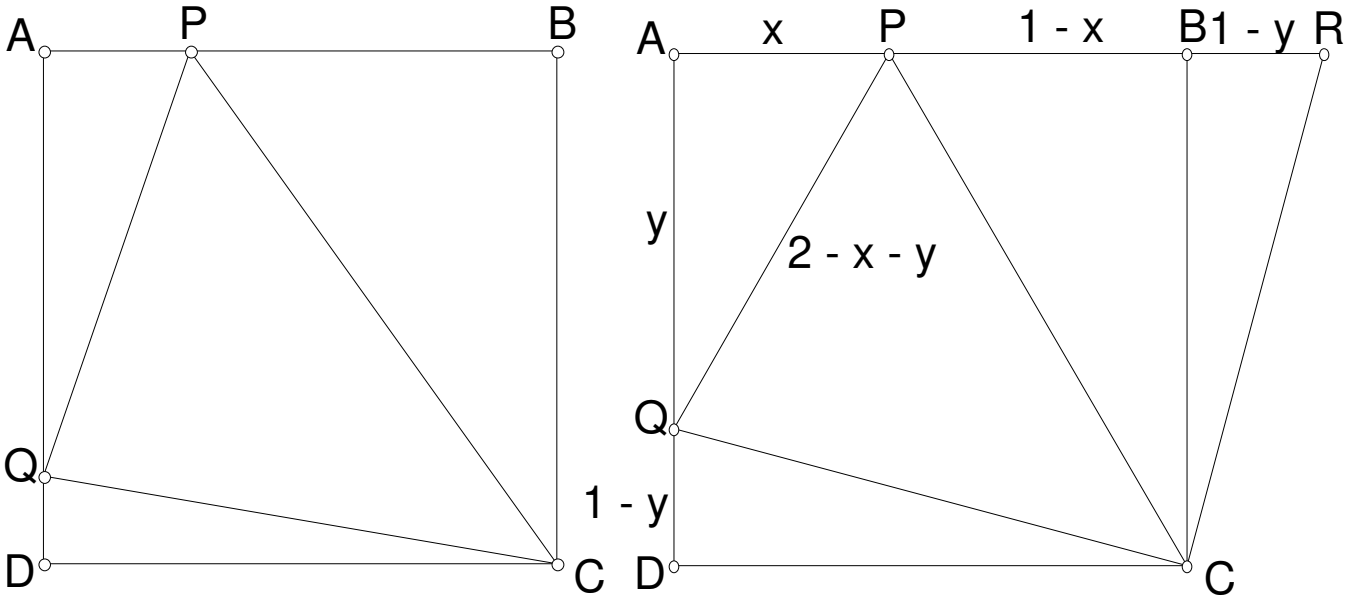

Rotate ΔCDQ about O clockwise 90° to ΔCBR.
Let $AP = x$, $AQ = y$, then $PQ = 2 - x - y$
$PB = 1 - x$, $QD = 1 - y = BR$
$PR = 2 - x - y = PQ$
$CP = CP$
$CQ = CR$ (property of rotation)
$\Delta CPQ \cong \Delta CPR$ (S.S.S.)
$\angle QCR = 90°$
$\angle PCQ = \angle PCR$ (corr. $\angle$s. $\cong \Delta$s)
$= 45°$