Question

PQRS is a Rhombus. m<PQS = (3x+10) and m<SQR = (x+40). Find m<QRS.

Given:
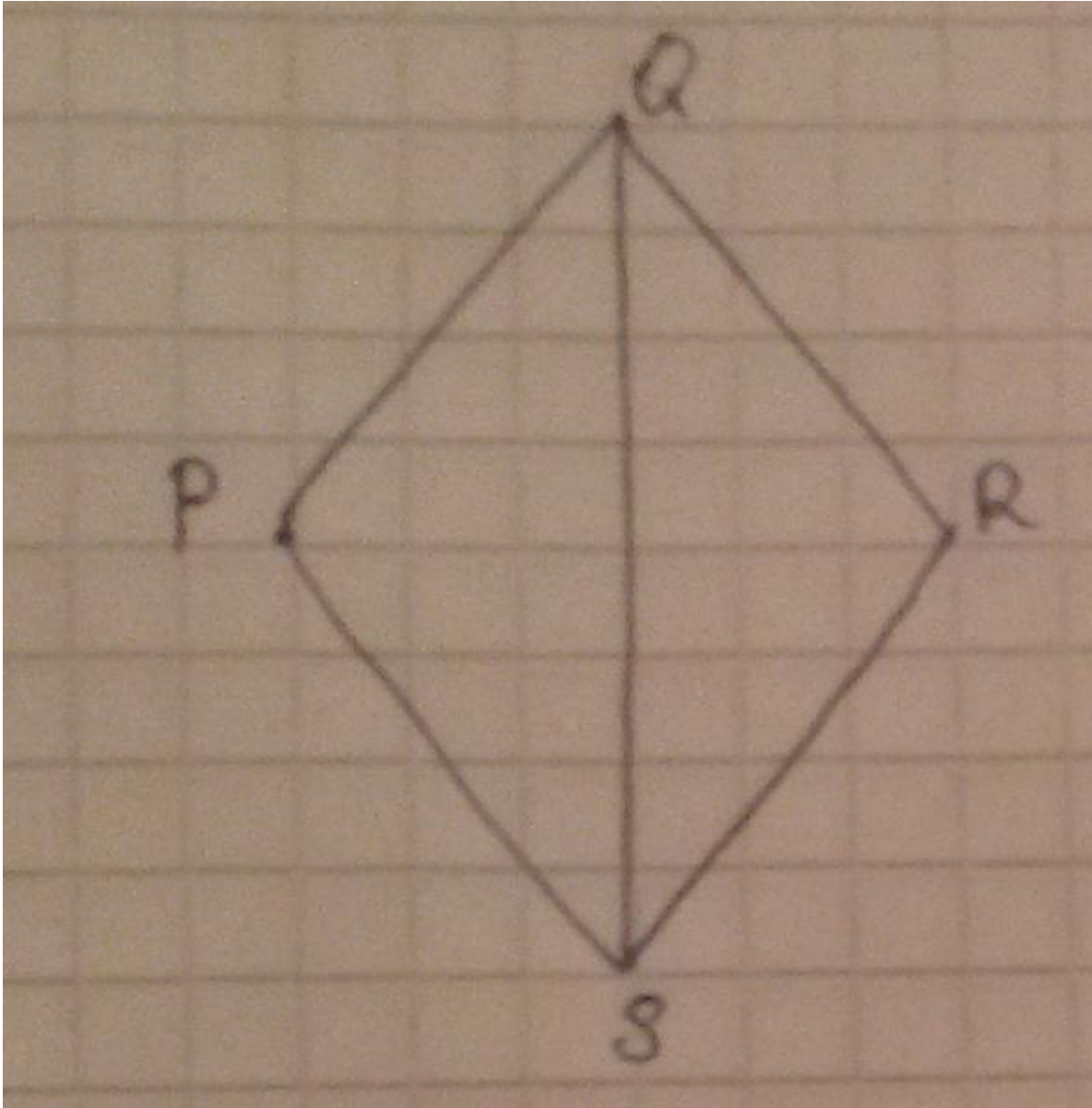
$\angle PQS = 3x + 10$
$\angle SQR = x + 40$

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$\angle QRS - ?$

Solution

1) QS is a diagonal of the rhombus, therefore $\angle PQS = \angle SQR$ (the diagonals bisect the angels)

$$3x + 10 = x + 40$$
$$2x = 30$$
$$x = 15$$

2) Then $\angle SQR = x + 40 = 15 + 40 = 55$, hence $\angle PQR = 2\angle SQR = 2 \cdot 55 = 110$
3) Then $\angle QRS = 180 - 110 = 70$.
   Recall rhombus' property: adjacent sides (ones next to each other) of a rhombus are supplementary. This means that their measures add up to 180 degrees.

Answer: $\angle QRS = 70$.