



Angles, Polygons and Geometrical Proof

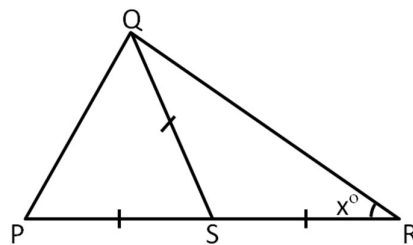
Stage 3 ★★

Mixed Selection 3

1. Triangle split

In the diagram the length SP , SQ and SR are equal and the angle SRQ is x° .

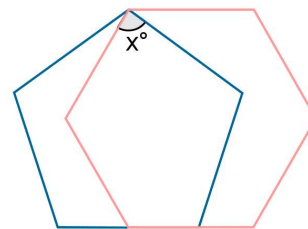
What is the size (in degrees) of the angle PQR ?



2. Hexapentagon

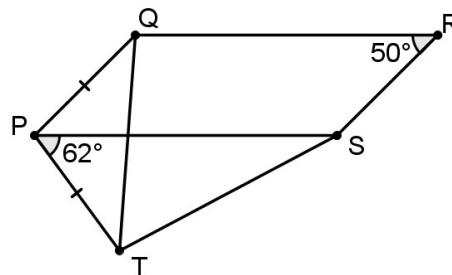
The diagram shows a regular pentagon and regular hexagon which overlap.

What is the value of x ?



3. Extended parallelogram

In the diagram, $PQRS$ is a parallelogram; $\angle QRS = 50^\circ$; $\angle SPT = 62^\circ$ and $PQ = PT$. What is the size of $\angle TQR$?



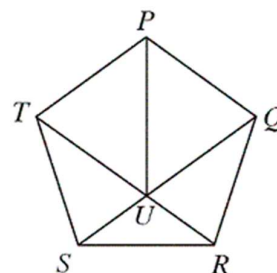
4. Six minutes past eight

What is the obtuse angle between the hands of a clock at 6 minutes past 8 o'clock?

5. U in a pentagon

The diagram shows a regular pentagon $PQRST$. The lines QS and RT meet at U .

What is the size of the angle PUR ?



These problems are adapted from UKMT Mathematical Challenge problems (ukmt.org.uk)