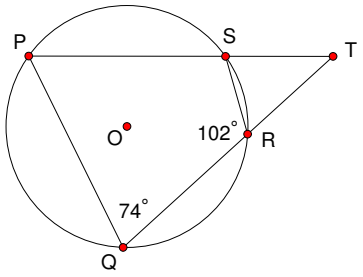
1. (a) We have $PQRS$ an inscribed quadrilateral so opposite angles in $PQRS$ must be supplementary. Thus $\angle QPS = 180^\circ - 102^\circ = \boxed{78^\circ}$.

   (b) $\boxed{28^\circ}$

   (c) $\boxed{74^\circ}$

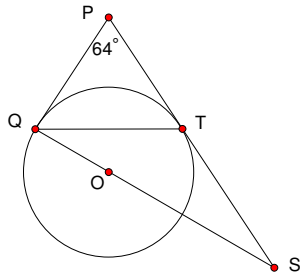


2. (a) $\boxed{30}$

   (b) $\boxed{8 \text{ cm}}$

   (c) $\boxed{16\sqrt{3}}$

3. It is a simple exercise to show that $QP = TP$. Then $\angle PQT = \angle PTQ = 58^\circ$. Since $\overline{QP}$ is tangent to the circle, $\angle OQP$ is a right angle. This means that $\angle SQT = 90^\circ - 58^\circ = \boxed{32^\circ}$



4. There was an error in this problem.