Alternative solution to problem **3** (Official solution no. 3)

Since $\angle BQC = \angle BTC = 180^\circ - \angle BAC$, the quadrilateral $BCTQ$ is cyclic. Hence the lines QT, BC and XE are concurrent as radical axes of Γ and the circumcircles of quadrilaterals $BCTQ$ and $QXET$. As in Solution 1 we can prove the fact that E and T are symmetric with respect to the line BC. Thus the lines XE and QT and respectively the points Q and X are symmetric with respect to BC.
It remains to observe that $\angle CXM = \angle CQM = \angle CBA$ and $\angle CXA = \angle CBA$ and we infer that X, M and A are collinear.