Solutions of these problems will be discussed on Friday, September 28.

**Problem 1.**

We say that a geodesic $n$-gon in a metric space $X$ is $K$-slim if each side of this $n$-gon is contained in the $K$-neighborhood of the union of the other $(n-1)$ sides. Thus in a $\delta$-hyperbolic space all geodesic 3-gons (triangles) are $\delta$-thin.

Find a function $f(n)$ (as small as possible), where $n \geq 3$, such that in any $\delta$-hyperbolic geodesic metric space $(X,d)$ every geodesic $n$-gon is $\delta f(n)$-slim.

[**Hint:** Think about the subdivision trick in the proof that geodesics in a hyperbolic metric space diverge exponentially]

**Problem 2.**

Show that hyperbolicity of the Gromov product is NOT a quasi-isometry invariant. That is, find quasi-isometric metric spaces $X$ and $Y$ such that for some $x \in X$ and $\delta \geq 0$ the Gromov product $(-,-)_x$ in $X$ is $\delta$-hyperbolic and such that for every $y \in Y$ and every $\delta' \geq 0$ the Gromov product $(-,-)_y$ in $Y$ is not $\delta'$-hyperbolic.