Exercise -1
Convince yourself that you understand what the following means precisely/formally and why it is well-defined and true:
Let $Y \subseteq X$ be a closed convex subset of a complete CAT(0) space $X$; then $\partial Y \subseteq \partial X$.

Exercise 0
Give an algebraic proof of the following. Let $f : [0, 1] \to \mathbb{R}_+$ be a convex function with $f(0) = 0$. If there is $0 < t_0 < 1$ with $f(t_0) = t_0f(1)$, then we have $f(x) = xf(1)$ for all $0 \leq x \leq t_0$. (In class we did the case $x > t_0$.)

Exercise 1
We now have another definition of the boundary $\partial X$, given by rays issuing from a chosen point $x_0 \in X$ and without asymptotic equivalence relation. Re-do the three exercises from last week with this definition! . . . it should be easier than with the original definition.

Exercise 2
For each of the three exercises from last week, describe the topology on $\partial X$. 