# Homework Presentations 1 (Olivia)

- Consider the persistence diagrams $D_1 = \{p_1 = (0,6),\ p_2 = (2,8),\ p_3 = (6,8)\}$ and $D_2 = \{q_1 = (1,7),\ q_2 = (4,10)\}$.
- Compute the point-to-point matching costs and the costs to the diagonal (it's probably easiest to organize them into a table; you only need to show one diagonal and one non-diagonal computation.
- Use binary search on this list to find the smallest feasible threshold. Record each threshold you test and whether it is feasible.
- Exhibit an optimal matching.

# Homework Presentations 2 (Loris)

- Let $K$ be the embedded graph with vertices $A = (0,0), \quad B = (1,2), \quad C = (2,1), \quad D = (3,3)$ and edges $AB$, $BC$, and $CD$. For a unit direction $v$, use the height function $h_v(x) = x \cdot v$
- Sketch $K$ in the plane
- Compute its PHT in the directions $(1,0), \quad (0,1)$. Give the $H_0$ and $H_1$ persistence diagrams for each direction.
- For one direction of your choice, show the filtration and persistence computation in detail.