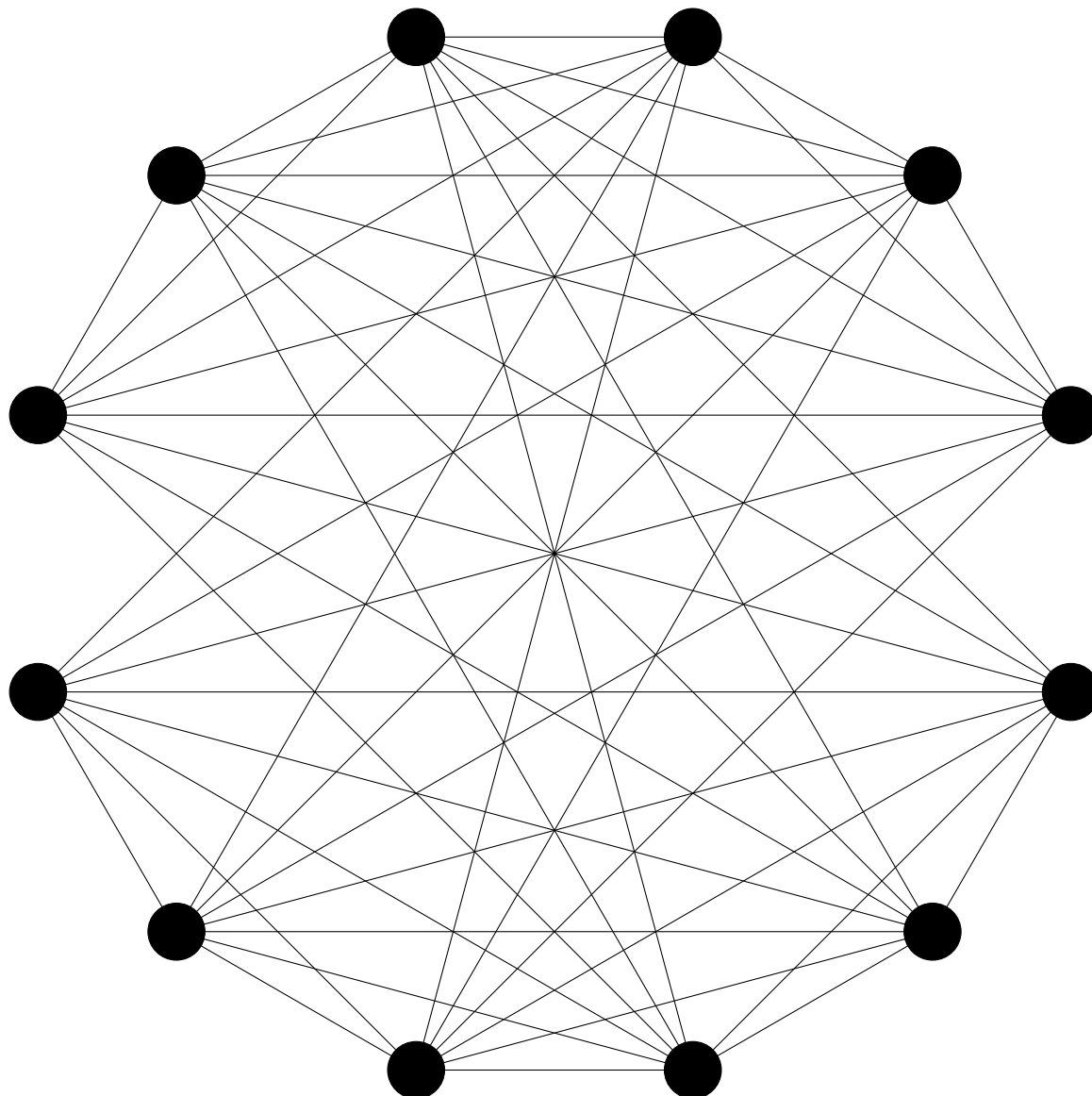


A Challenge

This graph has no triangle decomposition. Work through the questions to see why!



The number of edges is $8 \times 12 \div 2 = \underline{\hspace{2cm}}$, so the number of triangles would be $\underline{\hspace{2cm}}$.

Make a vertical fold through the middle, leaving six vertices on either side. Unfold. The number of edges that do NOT cross the fold is $\underline{\hspace{2cm}}$. The number that DO is $\underline{\hspace{2cm}}$.

If there were a triangle decomposition, at least one of the triangles would have all of its edges crossing the fold. (Why?) $\underline{\hspace{10cm}}$

But a triangle can't possibly have all three of its edges cross the fold. (Do you agree?)