## Exercise sheet 6

## COMP6741: Parameterized and Exact Computation

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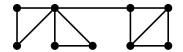
Exercise 1. A cluster graph is a graph where every connected component is a complete graph.

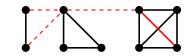
Cluster Editing

Input: Graph G = (V, E), integer k

Parameter: k

Question: Is it possible to edit (add or delete) at most k edges of G so that it becomes a cluster graph?





Recall that G is a cluster graph iff G contains no induced  $P_3$  (path with 3 vertices) and has a kernel with  $O(k^2)$  vertices.

1. Design an algorithm for Cluster Editing with running time  $3^k \cdot k^{O(1)} + n^{O(1)}$ .