Math 31003: Combinatorics Spring 2026 Quiz 6

Due at beginning of class Monday, March 16

This should be your own work (no other people or software (indluding AI)).

Questions about quiz should be directed to Prof. Arnold

Short explainations are helpful.

Name: _____

1. Let G be the graph $G =$
$(\{1,2,3,4,5,6\},\ \{\{1,2\},\{1,4\},\{1,5\},\{2,3\},\{2,4\},\{2,5\},\{3,4\},\{3,5\},\{3,6\},\{4,5\}\})$.

   (a) Draw a picture of G with vertices labeled.

   (b) If G is planar, draw it in a way that shows this. If G is not planar, explain how you know.

   (c) Does G have an induced subgraph H isomorphic to K_4? If so, list the vertices of H.

   (d) How many faces does G have?

   (e) What is the chromatic number, $\chi(G)$?