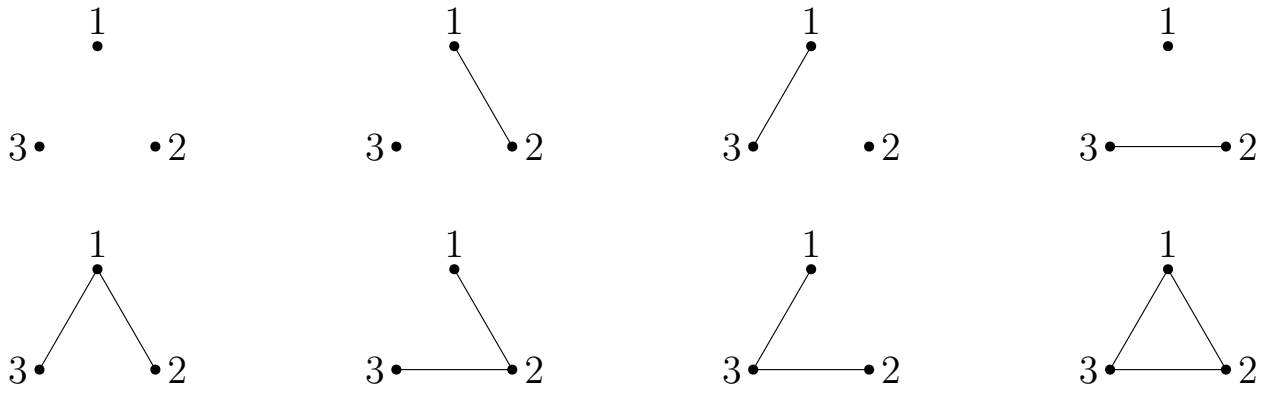
Quiz 1 - MACM 201 - *Solutions*

[4 pts] Find all graphs with vertex set $\{0, 1, 2\}$



[4 pts] Find all strings of length 4 over the alphabet $\{0, 1, 2\}$ with the property that there are no 10, 12, 20, or 21 substrings. Hint: what follows 1?

Solution: Every 1 must be followed by another 1 and every 2 must be followed by another 2. So all valid strings will start with an initial string of 0's and then are completed by a string of 1's or 2's (note that it is possible for one of these to be null). We deduce that the only strings meeting the given conditions are:

0000, 0001, 0002, 0011, 0022, 0111, 0222, 1111, 2222