For problems 3 and 4, does there exist a tree as described? If your answer is yes, draw as many <u>non-isomorphic</u> trees which meet these conditions as possible. If your answer is no, then explain why not.

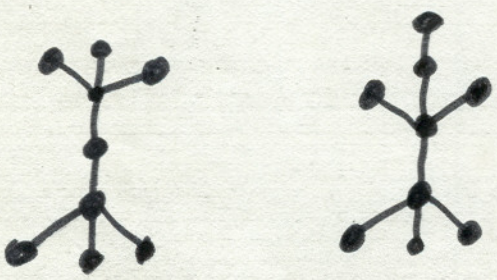
(3) Does there exist a tree with 9 vertices such that 2 vertices have degree 4 and 1 vertex has degree 2? (See above instructions.)

# of edges = 9-1 = 8

$\sum$ deg v = 2(# edges) = 16

4+4+2+_+_+_+_+_+_ = 16

and each _ ≥ 1 ∴ each _ = 1



(4) Does there exist a tree with 11 vertices such that 6 of the vertices have degree 3? (see above instructions.)

NO!

# of edges = 11-1 = 10

$\sum$ deg v = 2(# edges) = 20

3+3+3+3+3+3 + _+_+_+_+_ ≥ 23

18 at least 5