10.1

#10 1

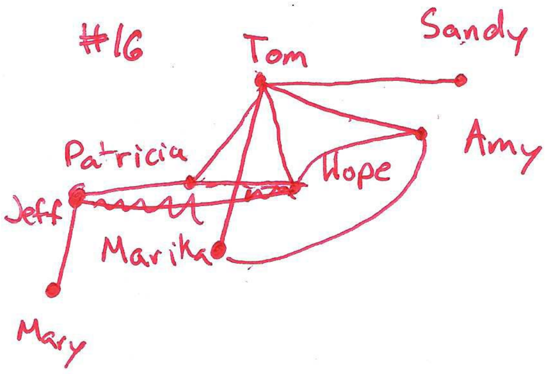
3 - none 3

4 - $\overline{ab}$, $\overline{bd}$, $\overline{bd}$

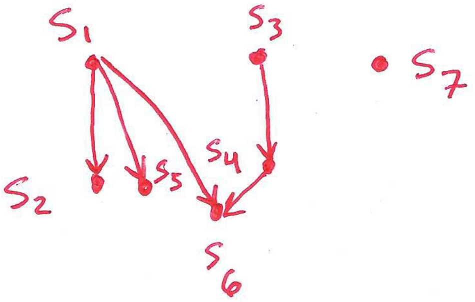
5 - $\bar{a}$, $\bar{b}$, $\bar{d}$, $\overline{ab}$, $\overline{bd}$, $\overline{cd}$ 3

6 - $\overline{ac}$, $\overline{bd}$ 3

#16



#33



10.2

#5 No, Theorem 2 states that undirected graph has an even number of Verticies of odd degree.

#18 Suppose G is a simple graph with N verticies. ~~Max~~ Each vertex has degree at most N-1 since G is simple. Make N-1 boxes And put each vertex in the Box corresponding to the degree ~~of~~. By the pigon hole principle There must be at least 1 Box with More than 1 vertex. Thus there must be at least 2 verticies with the same degree.

26)

a) $n = 2$

b) $n \bmod 2 = 0$

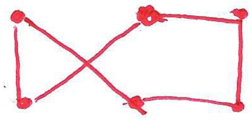
c) $n = 1$

d) for all n

42) a) odd number of odd deg.

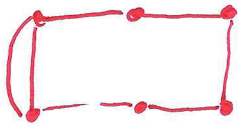
b) " odd number of odd deg "

c)



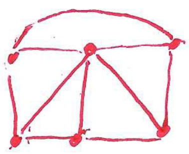
d) "odd number of od deg "

e)

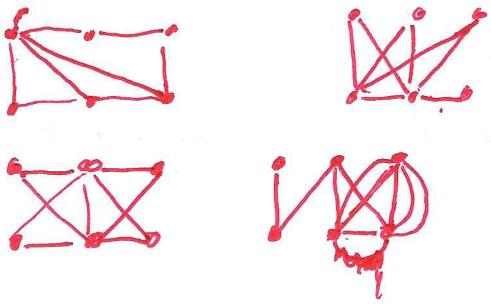


f)

g)



h)

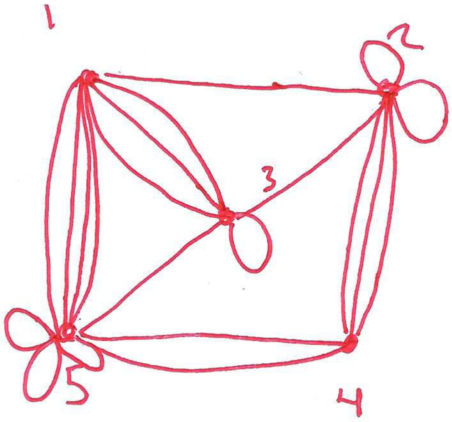


10.3

8)

$$\begin{array}{c|ccccc} & a & b & c & d & e \\ \hline a & 0 & 1 & 0 & 1 & 0 \\ b & 1 & 0 & 1 & 0 & 0 \\ c & 0 & 1 & 1 & 0 & 1 \\ d & 1 & 1 & 0 & 0 & 0 \\ e & 0 & 1 & 0 & 1 & 1 \end{array}$$

18)



36) In The first graph There is only 1 vertex of degree 2. In The second There are 2. Since the degree sequence is a graph invariant The 2 graphs can not be isomorphic.

54) a) 2 cases

b) 4 cases

c) 11 cases