Math 2366 Homework #8 Key

1. a. tree

b. not a tree, redundancy = 1

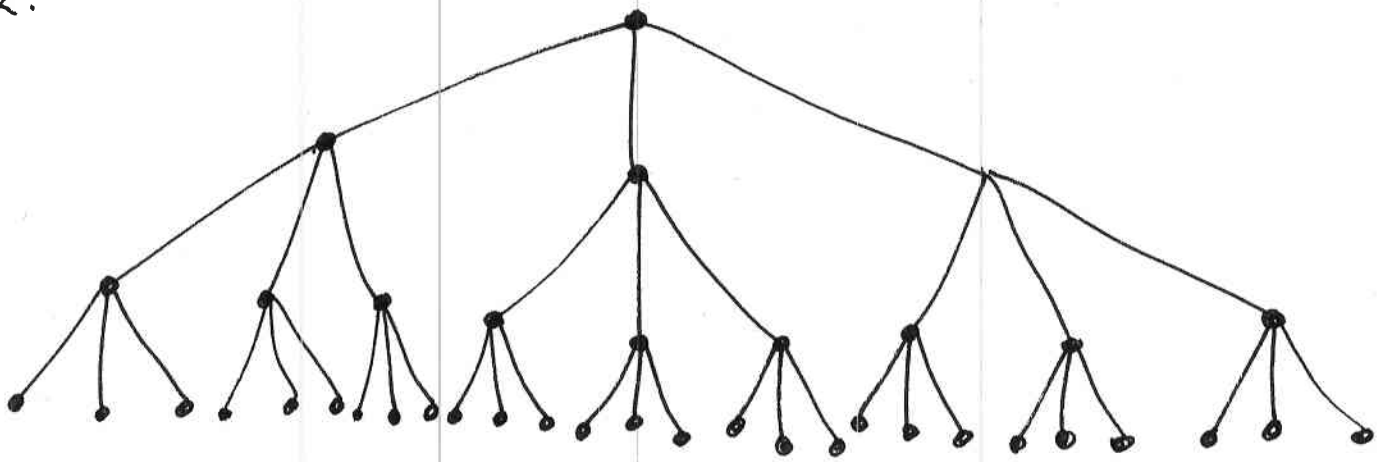
c. tree

d. not a tree, redundancy = 2

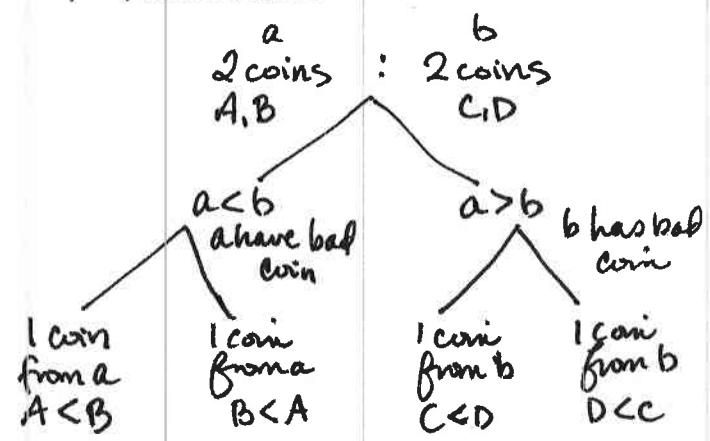
e. tree

none of the trees appear to be obviously rooted

2.



3. $\lceil \log 4! \rceil = 4$ minimum




lighter is counterfeit coin.

4. $17 > 4$

$17 > 1$

$4 > 1$

$5 < 17$

$5 > 4$

$13 < 17$

$13 > 5$

$10 < 17$

$10 > 4$

$10 > 5$

$10 < 13$

$14 < 17$

$4 < 14$

$5 < 14$

$13 < 14$

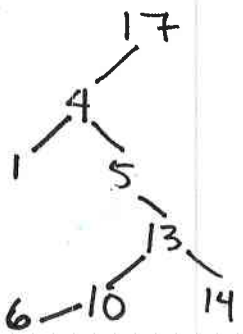
$17 > 6$

$4 < 6$

$5 < 6$

$13 > 6$

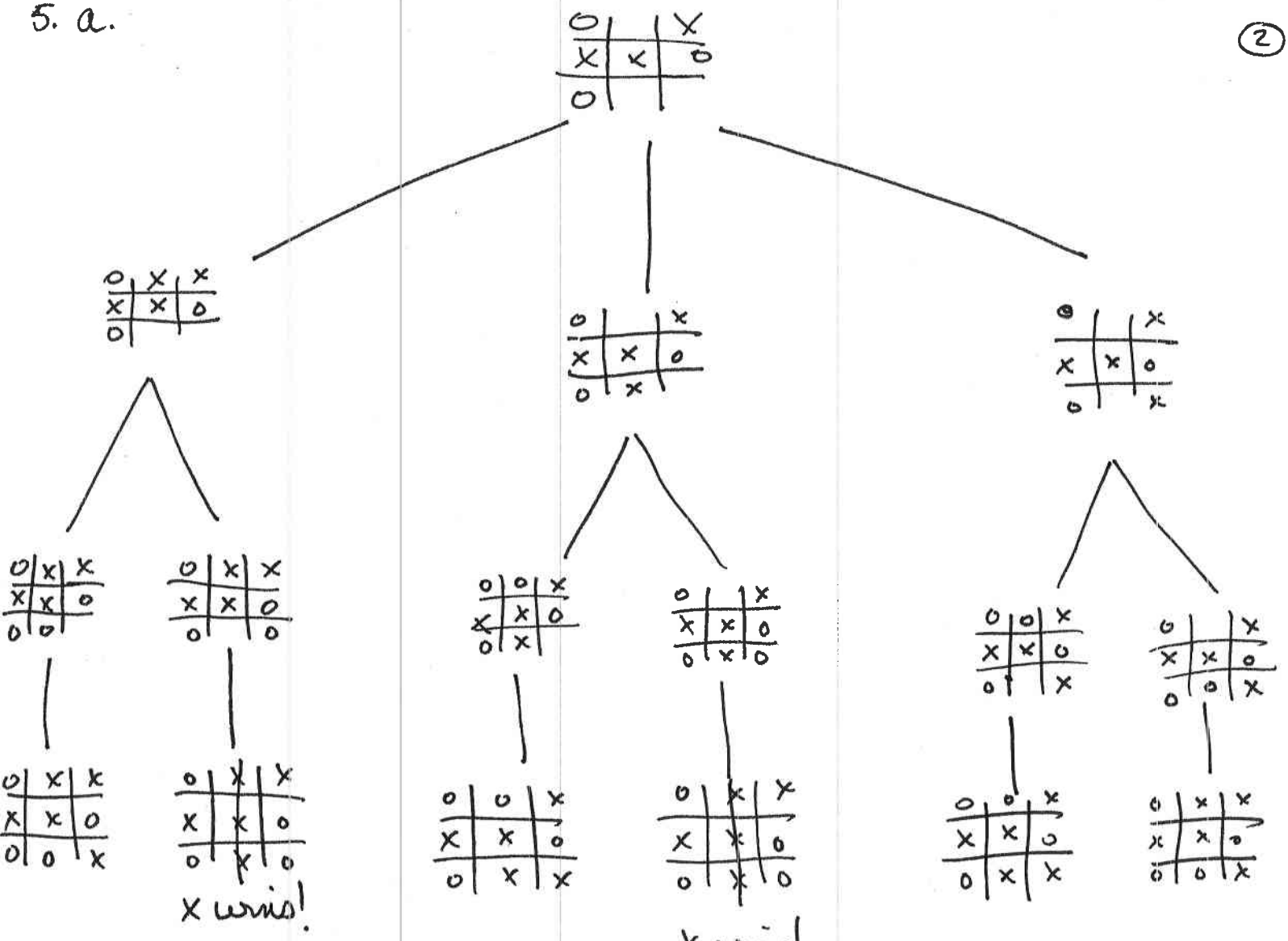
$10 > 6$




1, 4, 5, 6, 10, 13, 14, 17

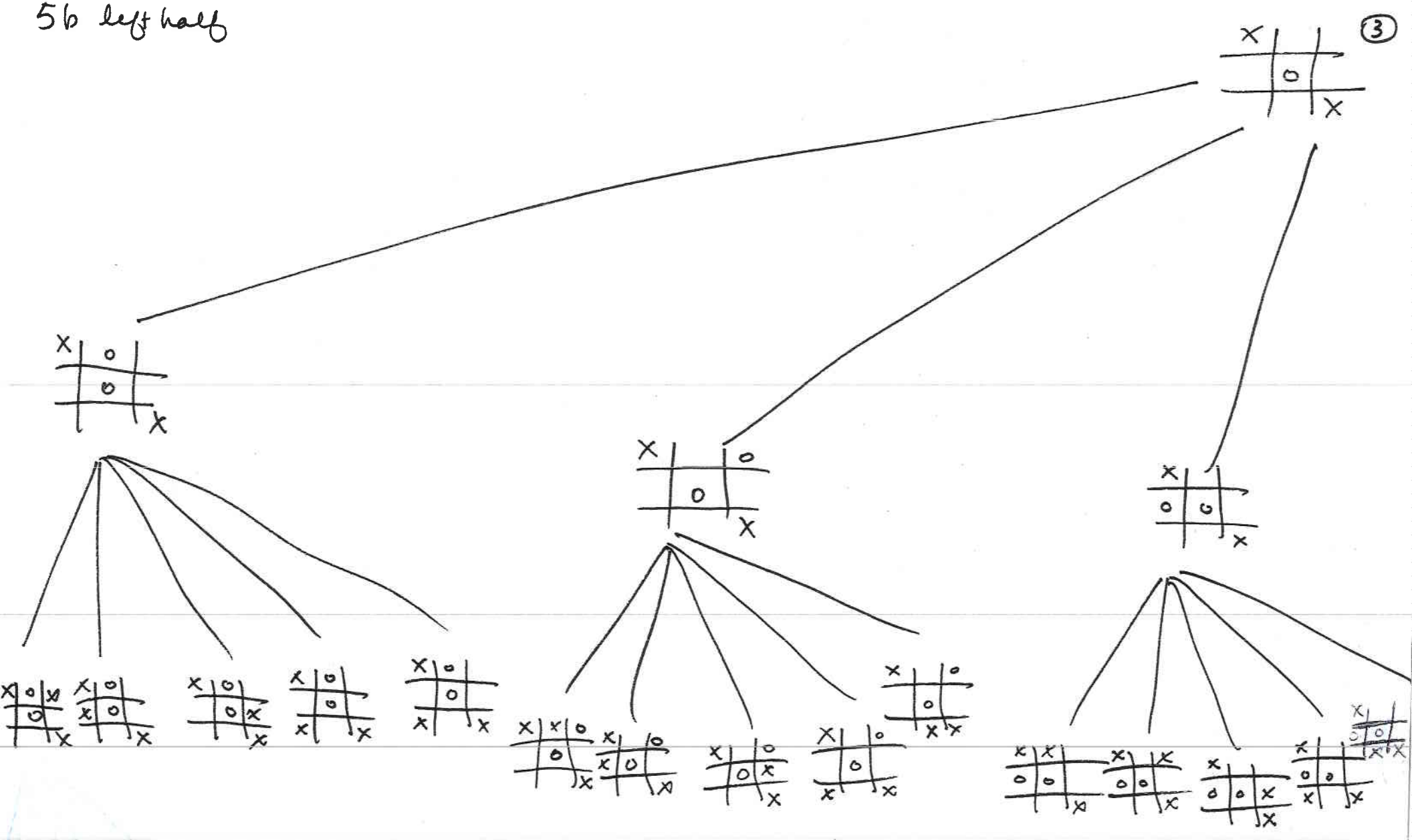
5. a.





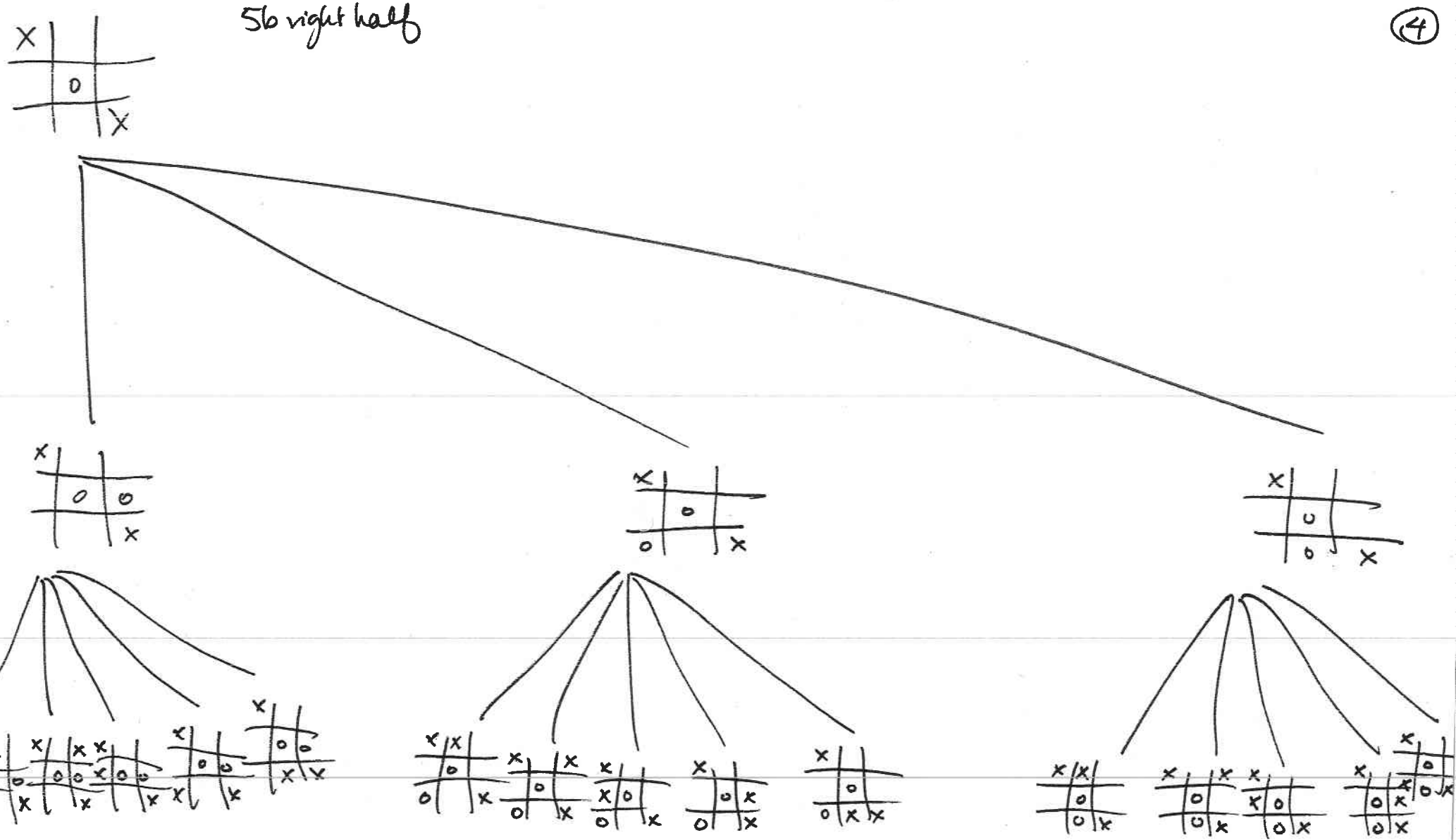
5b left half



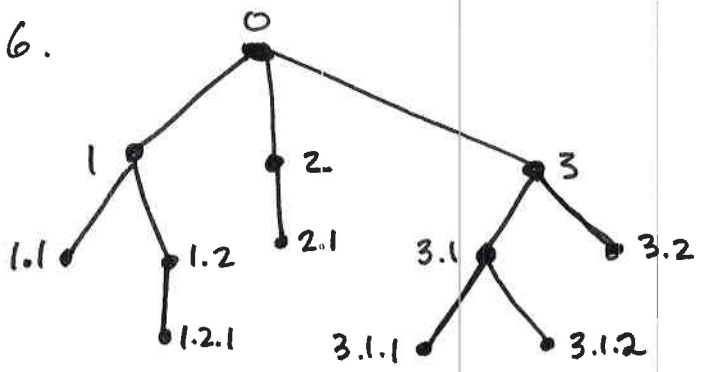


etc. game continues w/ 4 branches at the next level and 3 at the next, etc. Stopping when someone wins

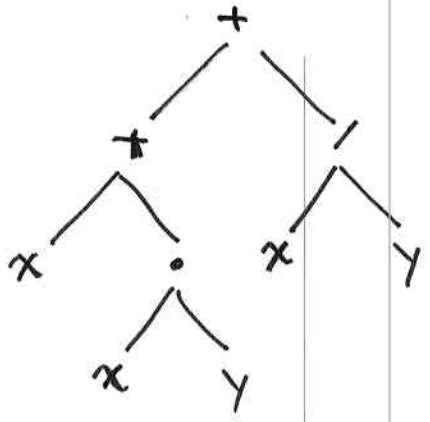
56 right half



6.



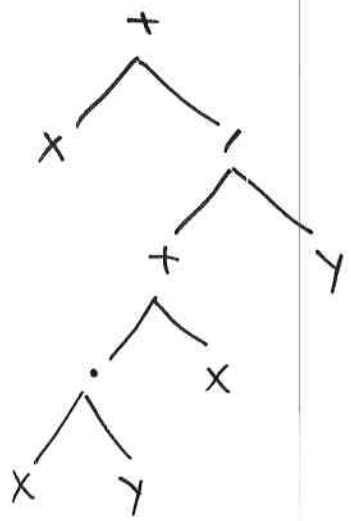

7.




a. ++·xyx/xy

b. xy·x+ xy/+

c. x+ x·y + x/y

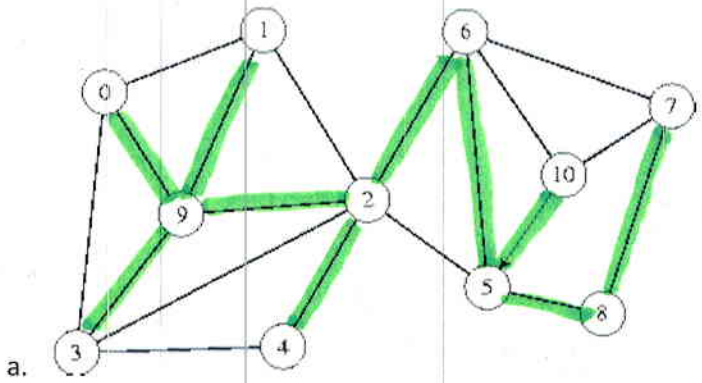



a. +x/+·xyxy

b. x xy·x+y/+

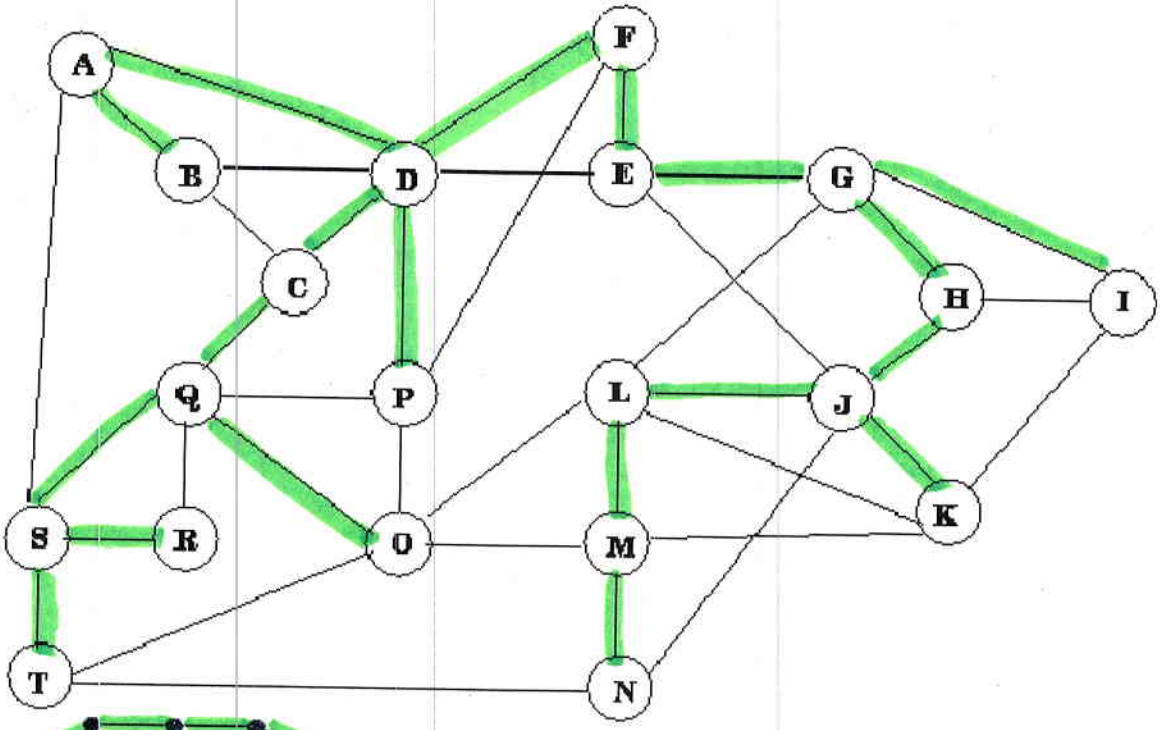
c.

8. answers will vary

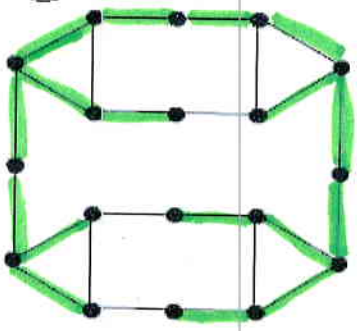


8 cont'd

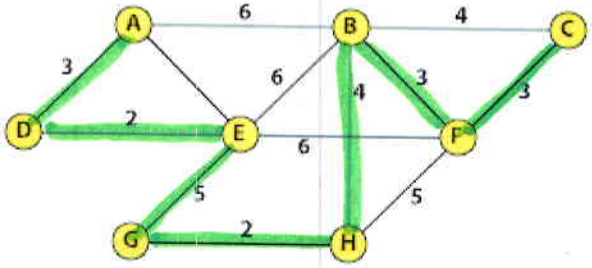





b.

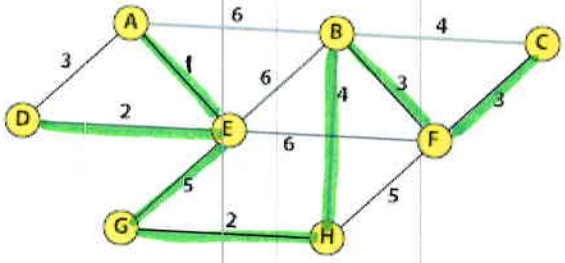


c.

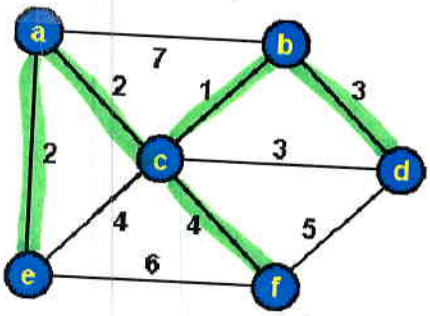



d.

9.a. unique




a.




d.

=20

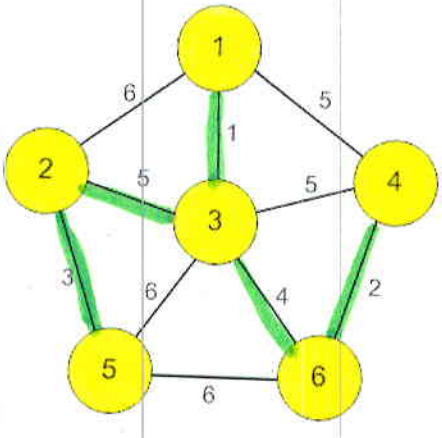
d. not unique

12

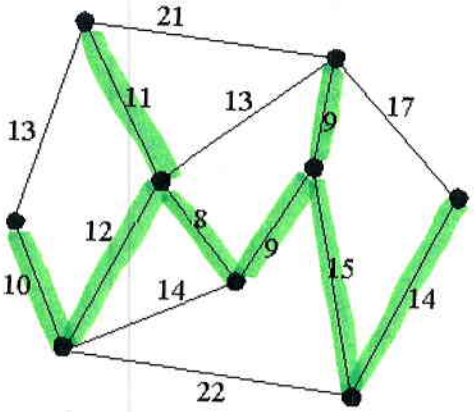
9 cont'd



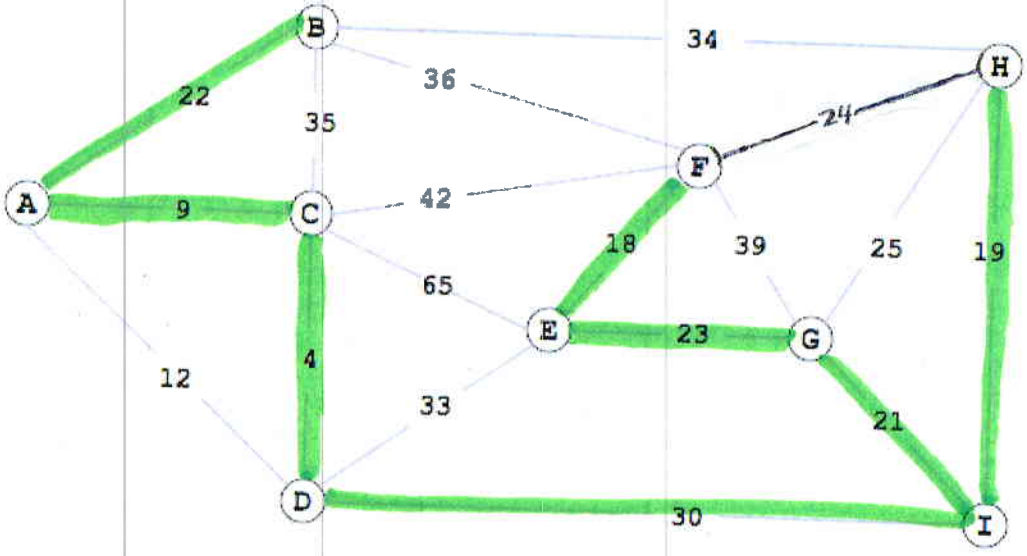
b.




e.




c.




b. unique = 15

c. unique = 146

d. unique = 88