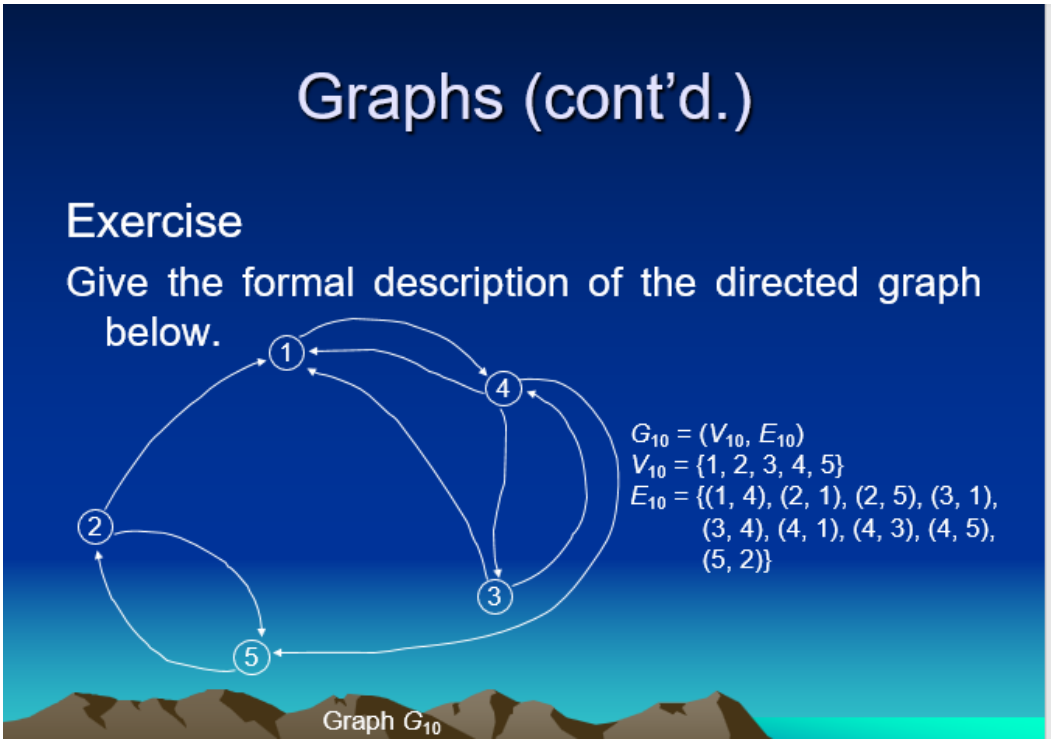
Short Quiz on Trees

6. 13,6,60
7. 7
8. None or 21
9. 22,7,12,4
10. 22
11. 23,6,21,20,9,1
12. 22,16,13,60,7,12,4
13. 3
14. max = 3
15. 4
16. 6
17. Yes
18. No
19. No
20. No
21. No
22. n^h = 3^4 = 81
23. (logm^n) = log 2^6 = 2.58
24. n = [(2^(h+1))-1]/(h-1) = = [(2^(4+1))-1]/(4-1) = 10.33
25. 2^h -1= 2^4 - 1= 15

Exercise on Graphs



The vertices adjacent to
Node 1 are 2, 3, and 4
The vertices adjacent from
Node 1 is 4

The vertices adjacent to
Node 2 is 5
The vertices adjacent from
node 2 are nodes 1 and 5.

The vertices adjacent to
Node 3 is 4
The vertices adjacent from
node 3 are nodes 1 and 4.

The vertices adjacent to
Node 4 is 1 and 3
The vertices adjacent from
node 4 are nodes 1, 3, 5.

The vertices adjacent to
Node 5 are 2 and 4
The vertices adjacent from
node 5 is node 2.

The edges are {(1, 4), (2, 1), (2, 5), (3, 1),
(3, 4), (4, 1), (4, 3), (4, 5),
(5, 2)}

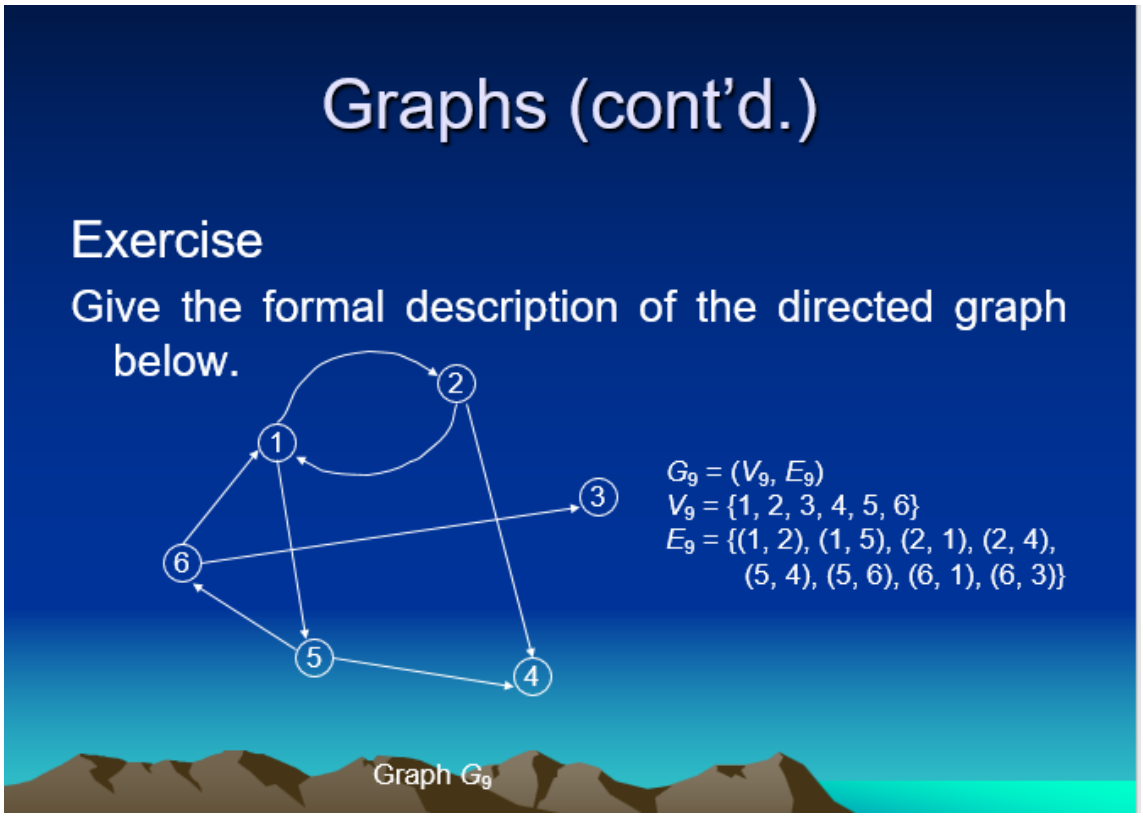
The edges incident to node 1 are (1, 4), (2, 1), (3, 1), and (4, 1)
The edges incident to node 2 are (2, 1), and (5, 2)
The edges incident to node 3 are (3, 1), (3, 4), and (4, 3)
The edges incident to node 4 are (1, 4), (4, 1), (4, 3), (3, 4), and (4, 5).
The edges incident to node 5 are (5, 2), (2, 5), and (4, 5)

Indegree of:
1 is 3 (V: 2, 3, 4)
2 is 1 (V: 5)
3 is 1 (V: 4)
4 is 2 (V: 1,3)

5 is 2 (V: 2,4)

Outdegree of:
1 is 1 (V: 4)
2 is 2 (V:1, 5)
3 is 2 (V: 1,4)
4 is 2 (V: 1,3,5)
5 is 1 (V: 2)

Simple Cycle
1,4, and 3
1,4,5,and 2
2 and 5



The vertices adjacent to
Node 1 are 2 and 6
The vertices adjacent from
Node 1 are 2 and 5

The vertices adjacent to

Node 2 is 1
The vertices adjacent from
node 2 are nodes 1 and 4

The vertices adjacent to
Node 3 is 6
The vertices adjacent from
node 3 is none

The vertices adjacent to
Node 4 is 2 and 5
The vertices adjacent from
node 4 is none

The vertices adjacent to
Node 5 is 1
The vertices adjacent from
Node 5 is 4 and 6.

The vertices adjacent to
Node 6 is 5
The vertices adjacent from
Node 5 is 1 and 3.

The edges incident to node 1 are (1, 2), (2, 1), (1, 5), and (6, 1)
The edges incident to node 2 are (2, 1), (1,2) and (2, 4)
The edges incident to node 3 are (3, 6)
The edges incident to node 4 are (2, 4), and (5, 4).
The edges incident to node 5 are (5, 4), (5, 6), and (1, 5)
The edges incident to node 6 are (6, 1), (6, 3), and (5, 6)

Indegree of:
1 is 2 (V: 2, 6)
2 is 1 (V: 1)
3 is 1 (V: 6)
4 is 2 (V: 2,5)
5 is 1 (V:1)
6 is 1(V:5)

Outdegree of:
1 is 1 (V: 2,5)
2 is 2 (V:1, 4)
3 is none
4 is none

5 is 2 (V: 4,6)
6 is 2 (V: 1,3)

Simple Cycle
1 and 2
1,5,and 6