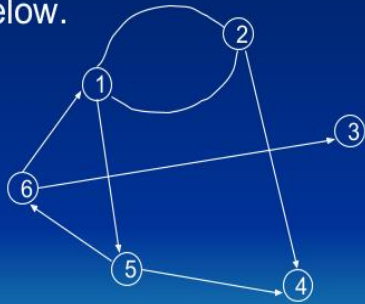


Graph Exercise

Exercise

Give the formal description of the directed graph below.



$$G_9 = (V_9, E_9)$$

$$V_9 = \{1, 2, 3, 4, 5, 6\}$$

$$E_9 = \{(1, 2), (1, 5), (2, 1), (2, 4), (3, 6), (4, 5), (5, 4), (5, 6), (6, 1), (6, 3)\}$$

Graph G_9

Indegree:

Outdegree:

1 is 2

1 is 2

2 is 1

2 is 2

3 is 1

3 is 0

4 is 2

4 is 0

5 is 1

5 is 1

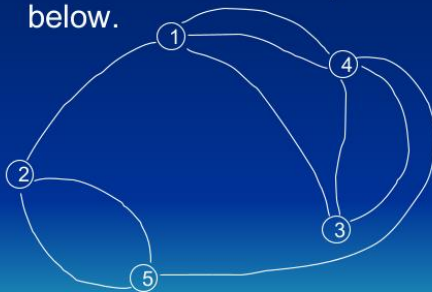
6 is 1

6 is 2

Graphs (cont'd.)

Exercise

Give the formal description of the directed graph below.



$$G_{10} = (V_{10}, E_{10})$$

$$V_{10} = \{1, 2, 3, 4, 5\}$$

$$E_{10} = \{(1, 2), (1, 3), (1, 4), (1, 5), (2, 1), (2, 5), (3, 1), (3, 4), (3, 5), (4, 1), (4, 3), (4, 5), (5, 2), (5, 3), (5, 4)\}$$

Graph G_{10}

Indegree:

Outdegree:

1 is 3

1 is 1

2 is 1

2 is 2

3 is 1

3 is 2

4 is 2

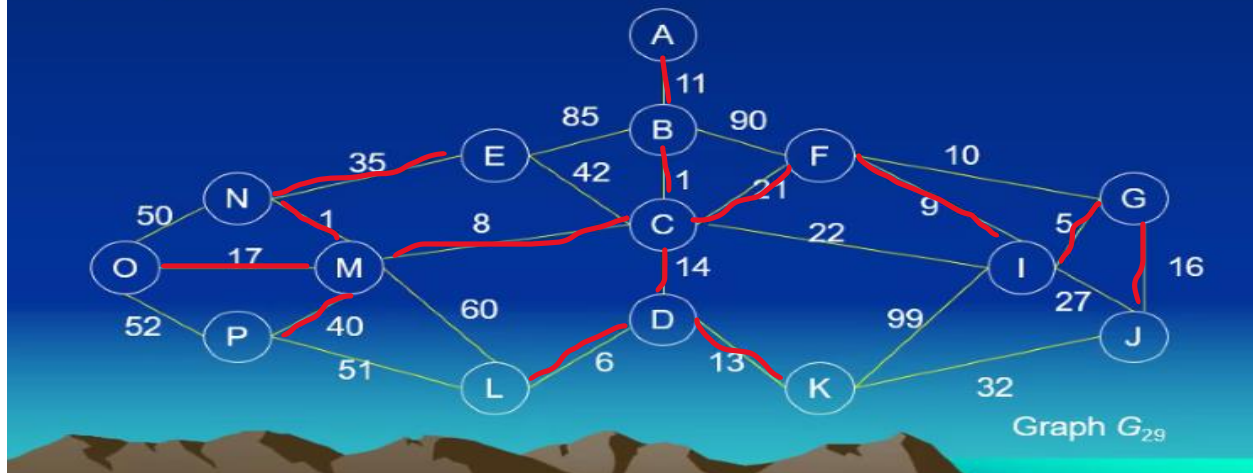
4 is 3

5 is 2

5 is 1

Graphs (cont'd.)

Graphs



Kruskal's Algorithm:

$$W(b,c) = 1$$

$$\cancel{W(i,j) = 27}$$

$$W(n,m) = 1$$

$$\cancel{W(k,j) = 32}$$

$$W(g,i) = 5$$

$$W(e,n) = 35$$

$$W(d,l) = 6$$

$$W(m,p) = 40$$

$$W(c,m) = 8$$

$$\cancel{W(e,e) = 42}$$

$$W(f,i) = 9$$

$$\cancel{W(n,o) = 50}$$

$$\cancel{W(f,g) = 10}$$

$$\cancel{W(p,l) = 51}$$

$$W(a,b) = 11$$

$$\cancel{W(o,p) = 52}$$

$$W(d,k) = 13$$

$$\cancel{W(m,l) = 60}$$

$$W(c,d) = 14$$

$$\cancel{W(e,b) = 85}$$

$$W(g,j) = 16$$

$$\cancel{W(b,f) = 90}$$

$$W(o,m) = 17$$

$$\cancel{W(k,i) = 99}$$

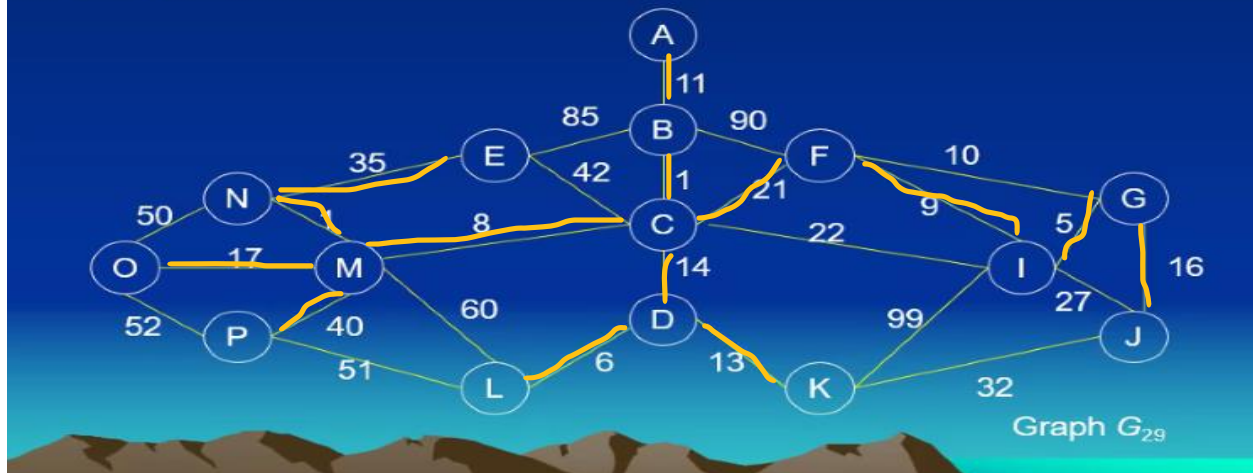
$$W(c,f) = 21$$

$$\text{Total: } 197$$

$$\cancel{W(e,i) = 22}$$

Graphs (cont'd.)

Graphs



Prim's Algorithm:

$$W(a,b) = 11$$

$$W(b,c) = 1$$

$$W(c,m) = 8$$

$$W(n,m) = 1$$

$$W(c,d) = 14$$

$$W(d,l) = 6$$

$$W(d,k) = 13$$

$$W(m,o) = 17$$

$$W(c,f) = 21$$

$$W(f,i) = 9$$

$$W(i,g) = 5$$

$$W(g,j) = 16$$

$$W(e,n) = 35$$

$$W(m,p) = 40$$

Total: 197

