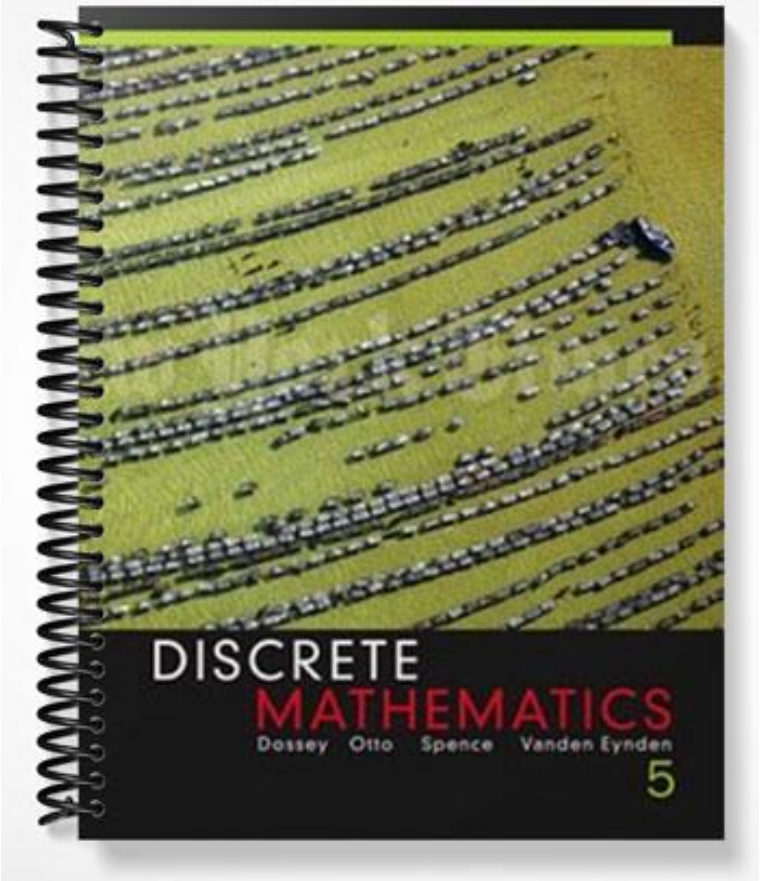
SOLUTIONS MANUAL



Instructor's Solutions Manual

Discrete Mathematics

Fifth Edition

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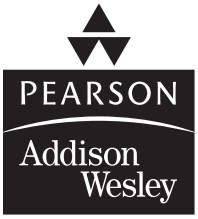

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1.1 THE TIME TO COMPLETE A PROJECT

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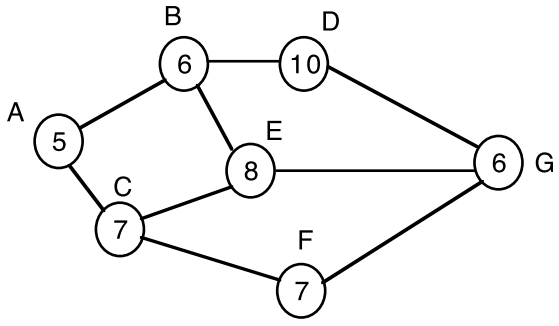
4. 39; A-C-G-H

6. 16; B-D-F-H

8. 27; A-D-E-H

10. 27; A-B-D-G



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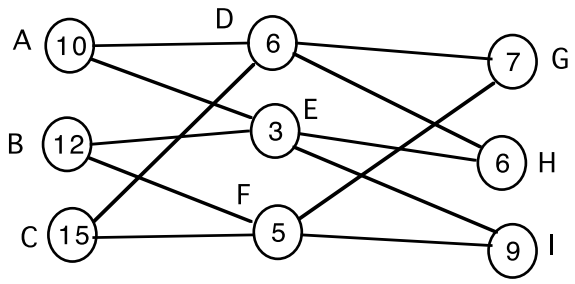

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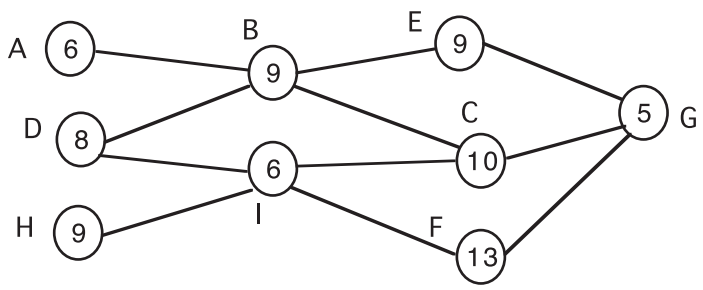
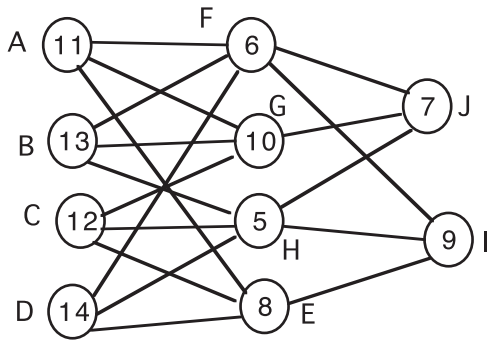


16. 31; D-E-I



18. 20 minutes

1.2 A MATCHING PROBLEM

2. 720 **4.** 210 **6.** 84 **8.** 1680

10. 19,958,400 **12.** $\frac{1}{8}$ **14.** 5040 **16.** 126

18. 210 **20.** 119 **22.** 1320 **24.** 5040

26. 240 **28.** 1200

1.3 A KNAPSACK PROBLEM

2. T **4.** F **6.** F **8.** F

10. T **12.** T **14.** T **16.** no

18. yes; 32

20. $\varnothing$, $\{1\}$, $\{2\}$, $\{3\}$, $\{4\}$, $\{1,2\}$, $\{1,3\}$, $\{1,4\}$, $\{2,3\}$, $\{2,4\}$, $\{3,4\}$, $\{1,2,3\}$, $\{1,2,4\}$, $\{1,3,4\}$, $\{2,3,4\}$, $\{1,2,3,4\}$; 16

22. 128 **24.** 1024 **26.** 256 **28.** 26

30. $\{1,4,6,7,8,9,10,11,12\}$

1.4 ALGORITHMS AND THEIR EFFICIENCY

2. yes; 0 **4.** no

6. no **8.** -1, 9, 84; 3, 17, 84

10. -4, -4, 41, 95; 2, 11, 33, 95 **12.** 111000

14. 001010

16.

k	j	a_1	a_2	a_3
3		1	1	1
2		1	1	1
1		1	1	1
0		1	1	1

18.

k	j	a_1	a_2	a_3	a_4
4		1	1	1	0
		1	1	1	1

20. The circled numbers in the table below indicated the items being compared.

a_1	a_2	a_3	a_4	j	k
23	5	(17)	(12)	1	3
23	(5)	(12)	17		2
(23)	(5)	12	17		1
5	23	(12)	(17)	2	3
5	(23)	(12)	17		2
5	12	(23)	(17)	3	3
5	12	17	23		

22. The circled numbers in the table below indicated the items being compared.

a_1	a_2	a_3	a_4	a_5	j	k
88	2	75	(10)	(48)	1	4
88	2	(75)	(10)	48		3
88	(2)	(10)	75	48		2
(88)	(2)	10	75	48		1
2	88	10	(75)	(48)	2	4
2	88	(10)	(48)	75		3
2	(88)	(10)	48	75		2
2	10	88	(48)	(75)	3	4
2	10	(88)	(48)	75		3
2	10	48	(88)	(75)	4	4
2	10	48	75	88		

24. 6.5 years, 2.7 seconds

26. 2.3×10^{10} years, 12.5 seconds

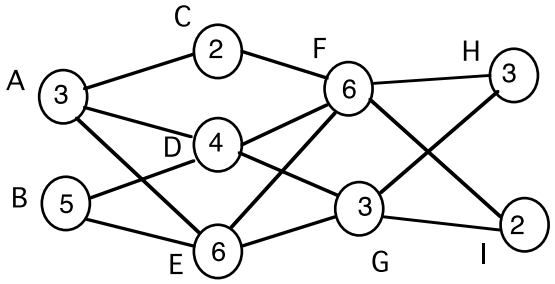
28. $4n - 3$

30. $3n - 2$

32. -4, -4, 41, 95

SUPPLEMENTARY EXERCISES

2. 20; B-E-F-H



4. 336

6. 40

8. 14040

10. T

12. F

14. T

16. T

18. 16

20. no

22. yes; 0

24. -5, 7, 7, 88

26. $\varnothing$, $\{4\}$, $\{3\}$, $\{3,4\}$, $\{2\}$, $\{2,4\}$, $\{2,3\}$, $\{2,3,4\}$, $\{1\}$, $\{1,4\}$, $\{1,3\}$, $\{1,3,4\}$, $\{1,2\}$, $\{1,2,4\}$, $\{1,2,3\}$, $\{1,2,3,4\}$

28. 4.92×10^8 years

30. 4

32. $4r - 3$