

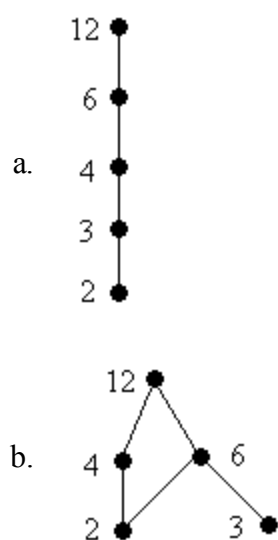
## Answers to Selected Exercises

### 1. Foundations

- 4. Partial Orders
  - 7. Counting Measure
  - 8. Combinatorial Structures
- 

### 4. Partial Orders

☑ 4.6



☑ 4.13

- a.  $\{a\}$
- b.  $\emptyset$
- c.  $a$
- d. Does not exist
- e.  $[-\infty, a]$
- f.  $[b, \infty]$
- g.  $a$
- h.  $b$

☑ 4.15

- a.  $\{2, 3\}$
- b.  $\{12\}$
- c. Does not exist

- d. 12
- e. {1}
- f. {12, 24, 36, ...}
- g. 1
- h. 12

## 7. Counting Measure

7.16. 67,600,000

7.17. 1,679,616

7.18

- a. 21 cards
- b. 324 outcomes
- c. The best hand would be the 5 remaining weapons or the 5 remaining suspects.

7.19. 624

7.20. 7776

7.21. 41,969,002,243,198,805,166,015,625

7.22.

- a. 81
- b. 1080

7.23.

- a. 1024
- b. 120

7.24. 1,048,576

7.25.

- a. 126
- b. 35

## 8. Combinatorial Structures

8.25. 720

8.26. 1,965,600

8.27.

- a. 40,320
- b. 1152
- c. 2880
- d. 384

8.29.

- a. 479,001,600
- b. 103,680
- c. 4,838,400

8.30.

- a. 50,400
- b. 9,979,200
- c. 34,650
- d. 3780
- e. 210

8.31. 27,720

8.32.

- a. 38,760
- b. 13,860
- c. 30,800

8.33. 9,777,287,520

8.34.

- a. 2,598,960
- b. 3744
- c. 624
- d. 5148

8.35.

- a. 635,013,559,600
- b. 151,519,319,380
- c. 47,079,732,700
- d. 11,404,407,300

8.36.

- a. 32,427,298,180
- b. 1,913,496

8.37. 347,373,600

8.40.

- a. 7726
- b. 720

8.41.252

8.42. 71,680

8.43. 108,864

8.44. 360,360

8.47.

a.  $\binom{n}{k}$

b. 7,059,052

8.49.

a. 210

b. 56

8.50. 6160

8.51.

a. 8855

b. 3876

8.52.

a. 220

b. 84

8.53.

a. Ordered samples with replacement: 10,000

b. Ordered samples without replacement: 5040

c. Unordered samples with replacement: 495

d. Unordered samples without replacement: 210

8.54.

a. -210

b.  $-\frac{15}{16}$

c.  $\frac{3640}{81}$

8.55.

a.  $\frac{1}{16}$

b. 70

c.  $-\frac{1}{128}$

8.56.

a.  $365^n$ .

b.  $365^{(n)}$ .

8.57.

- a. 1,625,702,400
- b. 40,320

8.58. 364

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