

Answers to Possible Exam Questions from the Book

	Chapter	Section	Problem #	Answer
1	2	2.1	27	{1,2,3,4,5,6,7}
2	2	2.1	57	16
3	2	2.2	19	a. {c,e}, b. {a,b,c,d,f}
4	2	2.2	28	a. {2,3}, b. {1,5}
5	2	2.3	5	Diagram Below
6	2	2.3	7	Diagram Below
7	2	2.3	10	Regions 5, 6, and 7
8	2	2.3	29	Diagram Below
9	2	2.3	37	a. $A = \{a,b,c,e\}$, $B = \{a,b,g,h\}$ and $U = \{a,b,c,d,e,f,g,h\}$ b. $A \cup B = \{a,b,c,e,g,h\}$ c. $(A \cap B) \neq \{c,d,e,f,g,h\}$
10	2	2.4	3	20
11	2	2.4	10	a. 8, b. 78, c. 67, d. 40
12	2	2.4	14	a.80, b.160, c.120, d.215, e.60
13	2	2.4	21	a. 120, b. 80, c. 50
14	2	2.4	25	a. 73, b. 55, c. 91, d. 38, e. 5
15	3	3.1	24	Ricky does not love Lucy and Lucy does not love Ricky.
16	3	3.1	37	All basketball players are 6 ft tall
17	3	3.1	39	He is not bald and he does not have a 10-in. forehead.
18	3	3.2	9	$g \wedge s$
19	3	3.2	11	a. $p \wedge q$, b. $p \vee q$, c. Statement (a) false, (b) true
20	3	3.2	23	$q \vee \sim j$, false
21	3	3.2	31	Diagram Below
22	3	3.2	45	Diagram Below
23	3	3.3	15	Diagram Below
24	3	3.3	17	Diagram Below
25	3	3.3	25	$q \rightarrow \sim p$
26	3	3.3	55	Statement (d)
27	3	3.4	19	$u \rightarrow h$
28	3	3.5	7	Valid, Diagram Below
29	3	3.5	15	Invalid, Diagram Below
30	3	3.6	6	$u \rightarrow s$ $s \rightarrow t$ $\therefore u \rightarrow t$ Valid
31	3	3.6	41	Conclusion (c)
32	8	8.2	13	Trapezoid
33	8	8.2	19	Scalene, Acute
34	8	8.2	25	(a) and (c)
35	8	8.2	29	14
36	8	8.2	37	18.75 ft
37	8	8.3	14	53 yd
38	8	8.3	17	$7\pi \approx 22.0$ m
39	8	8.3	31	$d = 15$ cm, $r = 7.5$ cm
40	8	8.4	4 and 9	16 m ² , $800 + 50\pi \approx 957$ cm ²

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	Chapter	Section	Problem #	Answer
41	8	8.4	15	$(25/4)\pi \approx 19.6$ ft. ²
42	8	8.4	17	8 ft.
43	8	8.4	32	7 in.
44	8	8.4	39	a. Its area is multiplied by 4. b. Its area is multiplied by 9. c. Its area is multiplied by k^2
45	8	8.5	9	a. The volume is multiplied by 8. b. The volume is multiplied by 27.
46	8	8.5	11	a. 1600 in. ² , b. 880 in. ²
47	8	8.5	25	$288\pi \approx 904$ in. ³
48	8	8.5	36	a. About 456 in. ³ , b. About 871 in. ³ , c. About 52%
49	10	10.1	16	a. 17,576, b. 1000, c. 17,576,000
50	10	10.1	19	a. 900,000,000, b. 10^9
51	10	10.2	16	5

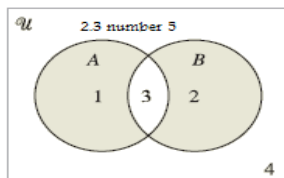
52	10	10.2	36	63
53	10	10.2	39	60
54	10	10.2	41	a. $10^6 = 1,000,000$, b. $P(10,6) = 151,200$, c. 151,200 are not enough for the population of 608,827.
55	10	10.3	20	190
56	10	10.3	25	$C(52,5) = 2,598,960$
57	10	10.4	11	a. $C(7,3)C(8,1) = 280$ b. $C(5,3)C(2,1) = 20$
58	11	11.1	10	$7/10 = .70$
59	11	11.1	45	a. 13/17, b. 4/17
60	11	11.1	49	a. 8/75, b. 1/5
61	11	11.2	10	$\frac{C(5,1)C(6,1)}{C(11,2)} = 6/11$
62	11	11.2	11	$\frac{P(26,2)}{P(52,2)} = 1/221$
63	11	11.2	22	a. $C(5,2) = 10$, b. $C(3,2) = 3$ $C(8,2) = 28$ c. $\frac{C(5,1)C(3,1)}{C(8,2)} = 15/28$
64	11	11.3	3	1
65	11	11.3	13	$3/13 \approx .231$
66	11	11.4	9	a. 1/5, b. 1/3
67	11	11.4	19	a. 3/10, b. 39/100
68	11	11.5	3	a. 1/96, b. 1/48, c. 7/16
69	11	11.5	31	a. 1/12, 1/8
70	11	11.6	7	5 to 21
71	11	11.6	15	$3/5 = .60$
72	12	12.2	14	40
73	12	12.2	15	a. 0.34, b. \$20,000 - \$24,999 c. \$39,444, d. \$20,000

Answers to Possible Exam Questions from the Book Cont'd

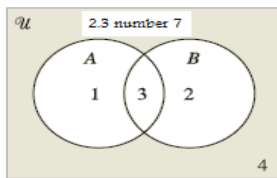
Chapter	Section	Problem #	Answer	
74	12	12.2	17	Statements (b) and (c) are true.
75	12	12.3	11	a. 8, b. 6.5, c. 6, d. 3.23, e. 70%
76	12	12.3	15	Range 15, Mean 7, Standard Deviation $\sqrt{30} \approx 5.48$
77	12	12.3	27	The numbers are all the same. If zero is the standard deviation, then $(x - \bar{x})^2 = 0$ for all x in the set.
78	12	12.3	30	For the first class, $x + s = 80$, $x + 2s = 85$, so the probability of scores ≥ 90 is very small. For the second class, $x + s = 85$, $x + 2s = 100$, so we would expect several scores ≥ 90 .
79	12	12.4	1	a. 100 in., b. 10 in., c. 68%, d. 2700
80	12	12.4	3	a. 25, b. 25, c. 680
81	12	12.4	4	a. 680, b. 25, c. 180
82	12	12.4	29	a. 0.249, b. 0.477
83	12	12.4	31	a. 0.998, b. 0.004
84	12	12.4	33	0.228
85	12	12.4	44	95% between 90 and 130 gal., 99% between 80 and 140 gal.
86	12	12.5	39	Diagram Below
87	12	12.5	41	Diagram Below
88	12	12.6	24	$9/50 \times 200 = 36$ males and $19/50 \times 200 = 76$ females
89	12	12.6	28	a. Diagram Below, b. 8.5%, c. 425
90	12	12.7	15	(c)
91	12	12.7	17	(a)
92	12	12.7	18	(a)

Diagram Answers

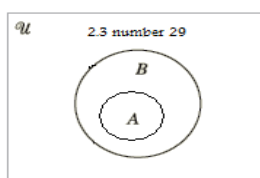
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6



8



21

1	5	4	3
p	\sim	$(p \vee q)$	$\sim q$
T	F	T	F
T	F	T	T
F	T	F	F
F	F	T	T

22

1	2	4	3	5	7	6
p	q	\sim	$(p \vee q)$	$\sim p$	\wedge	$\sim q$
T	T	F	T	F	F	F
T	F	F	T	F	F	T
F	T	F	T	T	F	F
F	F	T	F	T	T	T

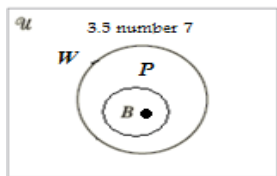
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1	3	4	6	5
p	r	$(p \rightarrow q)$	\Leftrightarrow	$(p \vee r)$
T	T	T	T	T
T	F	T	T	T
T	T	F	F	T
T	F	F	F	T
F	T	T	T	T
F	F	T	F	F
F	T	T	T	T
F	F	T	F	F

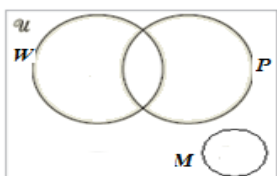
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1	2	3	5	4
p	q	r	$p \rightarrow$	$(q \wedge r)$
T	T	T	T	T
T	T	F	F	F
T	F	T	F	F
T	F	F	F	F
F	T	T	T	T
F	T	F	T	F
F	F	T	T	F
F	F	F	T	F

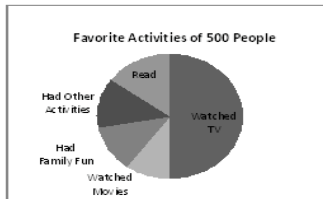
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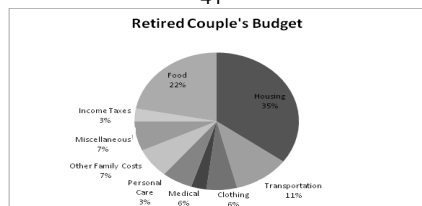
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