

Spring 2008 Final Exam Review Answers

1. 80
2. \$130
3. \$1126 million of auto, \$752 million of energy, \$786 million of transportation
4. (a) Not a Proposition
(b) Proposition
(c) Not a Proposition
5. -0.725
6. $\frac{27}{29}$
7. $(-908/69, -135/23, -412/69)$
8. 21,772,800
9. 13.40%, 6.06% (corrected 12/5/06)
10.
$$\left[\begin{array}{ccc|c} 1 & 0 & 1 & 17 \\ 0 & 1 & -2 & 4 \\ 0 & 0 & 13 & -11 \end{array} \right]$$
11. $a = 6, b = 12, c = 9$
12. (a) False
(b) False
(c) False
(d) False
(e) True
13. 3.5265%
14. 3 cars, 5 vans, 10 buses
15. (a) \$1462.33

Mo	Pmt	Int	Princ.	Bal.
1	1462.33	1236.98	225.35	237274.65
(b) 2	1462.33	1235.81	226.52	237048.13
241	1462.33	678.33	784	129454.54
242	1462.33	674.24	788.09	128666.45
16. \$14,600 worth of food, \$5,200 worth of cloth
17. 5/11
18. Yes, No
19. (a) \$2046.53
(b) \$1,540.48
(c) \$401,922.96
20. 0.5624
21. (a) Maximin: row 1, Minmax: column 3, Yes, -2 , column player
(b) Maximin: row 2, Minmax: column 1, No

x	$P(X = x)$
\$0.03	$\frac{120}{455}$
22. \$0.12	$\frac{225}{455}$
\$0.21	$\frac{100}{455}$
\$0.30	$\frac{10}{455}$

23. 0.3125 years
24. (a) continuous
(b) infinite discrete
(c) finite discrete
25. 0.7574
26. 360,360
27. All are valid
28. 0.6275
29. \$30,636.59
30. $E(X) = .38, \sigma = 11.70707, Var(X) = 137.0556, \text{Median} = -5, \text{Mode} = -5$
31. (a) $\{8, 10\}$
(b) $\{2, 4, 6, 12\}$
(c) \emptyset
32. 94.93%
33. 5
34. (a)
$$\begin{bmatrix} 20 & 18 & 9 \\ 15 & 7 & 12 \end{bmatrix}$$

(b)
$$\begin{bmatrix} 2 \\ 4 \\ 12 \end{bmatrix}$$

(c)
$$AB = \begin{bmatrix} 220 \\ 202 \end{bmatrix}$$

Jenny will make \$220 and Lisa will make \$202
35. 19.0252
36. $P = \begin{bmatrix} 10/13 & 3/13 \end{bmatrix}, Q = \begin{bmatrix} 2/13 \\ 11/13 \end{bmatrix}, -32/13, \text{column player}$
37. (a) It will not be hot this summer and I will spend the summer on the beach.
(b) Either it will be hot this summer or I will spend the summer on the beach.
(c) It will be hot this summer or I will not spend the summer on the beach.
38. 4,944

39. (a) $S = \{H1, H2, H3, H4, H5, H6, T1, T2, T3, T4, T5, T6\}$
 (b) $E = \{H2, H4, H6, T2, T4, T6\}$
 (c) $1/2$
40. 8.75 years
41. $4/9$
42. $4/9$
43. (a) $(\frac{25}{17} - \frac{54}{17}t, \frac{39}{17} - \frac{4}{17}t, t)$
 (b) $(23/3, -16/3, -16/3)$
 (c) No solution
44. 0.8
45. 0.2161
46. 970,562,390
47. 0.9961
48. (a) 0.545
 (b) 0.2569
 (c) 0.68
49. 68
50. 403,767,000
51. (a) Yes
 (b) Yes
 (c) Given you are currently in state B, the probability that you will transition into state C is 0.3
 (d) Given you are currently in state C, the probability that you will transition into state A is 0.3
52. \$2.25
53. 0.3278
54. See solutions
55. 0.6827

56. (a)
$$\begin{bmatrix} 3 & 3 & 1 \\ 3 & 1 & -2 \\ 1 & -2 & -2 \end{bmatrix}$$

(b) Maximin: row 1, Minimax: column 3, yes, 1, row player

57. \$29,058.78

58. $b = -2$

59. 250 students

p	q	$p \wedge q$	$\sim p$	$\sim p \vee (p \wedge q)$
T	T	T	F	T
T	F	F	F	F
F	T	F	T	T
F	F	F	T	T

(b)

p	q	r	$p \vee q$	$\sim p$	$\sim p \wedge r$	$(p \vee q) \wedge (\sim p \wedge r)$
T	T	T	T	F	F	F
T	T	F	T	F	F	F
T	F	T	T	F	F	F
F	T	T	T	T	T	T
T	F	F	T	F	F	F
F	T	F	T	T	F	F
F	F	T	F	T	T	F
F	F	F	F	T	F	F