

Homework

Homework will not be collected or graded. Homework will give you a very close indication of the material that will be covered in exams and quizzes. Some homework questions will be reviewed in the sections (Note: Answers to even problems are in parentheses).

Homework 1

- Section 1.4: Exercises 1, 3, 6, 7, 8
- Section 1.5: Exercises 3, 4 (0.6), 6 (0.5), 7, 9, 11, 14 ((a) Anti A 0.38 Anti B 0.16 (b) 0.04)
- Section 1.6: Exercises 1, 3, 4 ($1/7$), 6 ($1/4$)
- Section 1.7: Exercises 2 (9000), 3, 5, 7, 8 (360/2401)
- Section 1.8: Exercises 1, 4 ($1/10626$), 6 ($2/n$), 10 (0.1630), 11, 12 (0.5798), 17

Homework 2

- Section 2.1: 1, 2, 3, 4, 5, 6, 9 (answers: problem 2: 0; problem 4: $1/27$).
- Section 2.2: 1, 2, 4, 7, 10, 11, 12, 13, 23 (answers: problem 4: 0.00463; problem 12: (a) $1/4$ (b) $11/24$).
- Section 2.3: 3, 4, 5, 6, 7 (answers: problem 4: 0.00019, problem 6: a) $96/97$, b) $64/65$)

Homework 3

- Section 3.1: 1, 2, 5, 6, 7, 8, 10 (answers: problem 1: $6/11$; problem 2: $1/15$, problem 6: 0.1509, problem 8: 0.1330).
- Section 3.2: 3, 4, 5, 7, 8, 10 (answers: problem 4: (a) $3/7$; (b) $37/56$; problem 8: (a) 2 (b) $\exp(-2)-\exp(-4)$; problem 10: (a) $1/2$; (b) $1-(1/2)^{(1/2)}$).
- Section 3.3: 2, 3, 4, 5, 6, 9 (answers: problem 4: (a) 0.1, (b) 0.1, (c) 0.2, (d) 0, (e) 0.6, (f) 0.4, (g) 0.7, (h) 0, (i) 0, (j) 0, (k) 0, (l) 0.2).
- Section 3.4: 1, 2, 3, 4, 5, 8, 10 (answers: problem 1: (a) $1/2$ (b) 0.75; problem 2: (a) 0.27, (b) 0.53, (c) 0.69, (d) 0.3, (e) 0.25; problem 3: (a) $1/40$ (b) $1/20$ (c) $7/40$ (d) 0.7; problem 4 (a) $3/2$ (b) $3/8$ (c) $1/8$ (d) $1/2$ (e) 0; problem 5: (a) $5/4$; (b) $79/256$ (c) $13/16$ (d) 0; problem 8: (a) $5/78$; (b) $25/78$; (c) $y(9+y)/52$ (d) $(3x^2+2y)/156$; problem 10: (b) $1/3$)
- Section 3.5: 2, 3, 4, 6, 7, 8, 11 (answers: problem 2: (a) $(2x+3)/15$ (b) $(1+y)/10$; problem 3: (b) they are independent; problem 4 (a) $f(x)=15x^2(1-x^2)/4$ and $f(y) = (5(1-y)^{3/2})/2$ (b) not independent; problem 7: yes, problem 6: (b) 0 (c) $1/2$; (d) $1/1280$; problem 8: no; problem 11: $11/36$)

Homework 4

- Section 3.6: 1, 4, 5, 6, 8 (answers: problem 4: (b) $1/3$; problem 6: (b) $1/3$; problem 8: (a) 0.264,

(b) 0.284, (c) 0.314) .

- Section 3.8: 1, 2, 3, 8, 9, 13 (answers: problem 8: $2y \exp(-y^2)$).
- Section 3.9: 1, 2, 6, 7, 8
- Section 3.10: 2, 3, 4, 5, 6, 7, 8, 9, 19 (answers: problem 2: (a) 0.4 (b) 0.49 (c) 0.936; problem 4: (a) 0.4669 (b) 0.4662; problem 6: (a) $0.8 \cdot 0.5 \cdot 0.5 = 0.2$, (b) $0.5 \cdot 0.2 \cdot 0.2 = 0.02$, problem 8: (a) 0.29, (b) 0.6239)

Homework 5

- Section 3.11: 8, 14, 16, 17 (answers: problem 8: $F(x)[1+F^2(x)-F^3(x)]$, 14: $2/3$, problem 16: (a) $5/8$, (b) $2(x+y)/(1+2x-3x^2)$)
- Section 4.1: 3, 6, 8 (answer: $1/2$), 11
- Section 4.2: 2, 3, 7, 9 (answers: problem 2: -4);
- Section 4.3: 1, 3, 4, 6, 7.
- Section 4.6: 5, 9, 12, 13 (answers: problem 12: $245/81$; problem 13: (a) 11, (b) 51).
- Section 5.2: 8 (0.6993)
- Section 5.3: 2, 3 (answers: Problem 2: 0.4266).
- Section 5.4: 3, 6, 7 (answers: Problem 6: $\exp(-3.6)$)
- Section 5.5: 1, 2, 3 (answers: Problem 2: (a) 145, (b) 4350).

Homework 6

- Section 5.6: 1, 2, 3, 4, 5, 11, 15, 16 (answers: problem 2 (a) 0.8413 (b) 0.4013 (c) 0 (d) 0.2858 (e) 0.6915 (f) 0.2426 (g) 0.6247 (h) 0.4599; problem 3: $400/81$ problem 4: the 25th quantile is 65.30 and the 75th is 70.698; problem 5: 0.9960; problem 11: $n=1083$; problem 16: 0.8186).
- Section 6.2: 5.
- Section 6.3: 2, 3, 5, 8, 9, 10 (answers: problem 2: 0.0227; problem 3: 0.9938; problem 5: 542; problem 8: 0.0013, problem 9: (a) 0.36, (b) 0.7888, problem 10: (a) $n \geq 1600$ (b) $n \geq 106$).
- Section 4.7: 2, 6, 7 (answers: problem 2: 80.8, problem 6: 0)