Chapter 1 : Exercises

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prob 7

(g) 10101

Sol.) 010101

1

010110

16 + 4 + 2 = 22

∴ -22

(f) 111001

Sol.) 000110

1

000111

4 + 2 + 1 = 7

∴ -7

prob 9

(c) 001100

110100

Sol.) 001100

110100

1000000

∴ 000000

001100

4 8 + 4 = 12

110100

4 001011

1

001100

8 + 4 = 12

∴ -12

000000 (+12) + (-12) = 0

prob 10

(a) 010101

001100

Sol.)

010101 — 010101 (1) — 110011

- 001100

(1) 001001

∴ 001001

i) 21 - 12 = 9

ii) +21 - (+12) = +9

(e) 110010

110111

Sol.)

110010 — 110010 (1) — 001000

- 110111

(0) 111011

∴ 111011

i) 50 - 55 = overflow

ii) -14 - (-9) = -5

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prob 15

(f) 0100 1000

Sol.)

i) 48 ii) 45 iii) 1000 not used

iv) 15 v) 72 vi) +72

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Chapter 1 TEST prob 4

11

1100 = -4

1101 = -3

(1) 11001 = -7

4 1001

(-4) + (-3) = (-7)

111

1010 = -6

0111 = 7

(1) 00001 = 1

4 0001

(-6) + (7) = 1

111

0101 = 5

0011 = 3

(0) 1000 = overflow

4 1000

5 + 3 = overflow

Chapter 2 : Exercises

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prob 2

(9)

i_s1	i_s2	i_b1	i_b2	i_r1	i_r2	o_s1	o_s2	o_b1	o_b2	o_b3
0	0	0	0	0	0	0	1	0	0	0
0	0	0	0	0	1	0	1	0	0	0
0	0	0	0	1	0	0	0	0	0	1
0	0	0	0	1	1	0	0	0	0	0
0	0	0	1	0	0	0	1	0	0	1
0	0	0	1	0	1	0	1	0	0	1
0	0	0	1	1	0	0	0	0	1	0
0	0	0	1	1	1	0	0	0	0	0
0	0	1	0	0	0	0	1	0	1	0
0	0	1	0	0	1	0	1	0	1	0
0	0	1	0	1	0	0	0	0	1	1
0	0	1	0	1	1	0	0	0	0	0
0	0	1	1	0	0	0	1	0	1	1
0	0	1	1	0	1	0	1	0	1	1
0	0	1	1	1	0	0	0	1	0	0
0	0	1	1	1	1	0	0	0	0	0
0	1	0	0	0	0	1	0	0	0	0
0	1	0	0	0	1	1	0	0	0	0
0	1	0	0	1	0	0	1	0	0	1
0	1	0	0	1	1	0	0	0	0	0
0	1	0	1	0	0	1	0	0	0	1
0	1	0	1	0	1	1	0	0	0	1
0	1	0	1	1	0	0	1	0	1	0
0	1	0	1	1	1	0	0	0	0	0
0	1	1	0	0	0	1	0	0	1	0
0	1	1	0	0	1	1	0	0	1	0
0	1	1	0	1	0	0	1	0	1	1
0	1	1	0	1	1	0	0	0	0	0
0	1	1	1	0	0	1	0	0	1	1
0	1	1	1	0	1	1	0	0	1	1
0	1	1	1	1	0	0	1	1	0	0
0	1	1	1	1	1	0	0	0	0	0
1	0	0	0	0	0	1	1	0	0	0
1	0	0	0	0	1	1	0	0	0	0
1	0	0	0	1	0	1	0	0	0	1
1	0	0	0	1	1	0	0	0	0	0
1	0	0	1	0	0	1	1	0	0	1
1	0	0	1	0	1	1	0	0	0	1
1	0	0	1	1	0	1	0	0	1	0
1	0	0	1	1	1	0	0	0	0	0
1	0	1	0	0	0	1	1	0	1	0
1	0	1	0	0	1	1	0	0	1	0
1	0	1	0	1	0	1	0	0	1	1
1	0	1	0	1	1	0	0	0	0	0
1	0	1	1	0	0	1	1	0	0	1
1	0	1	1	0	1	1	0	0	1	1
1	0	1	1	1	0	1	0	1	0	0
1	0	1	1	1	1	0	0	0	0	0
x	x	0	0	0	0	x	x	x	x	x
x	x	0	0	0	1	x	x	x	x	x
x	x	0	0	1	0	x	x	x	x	x
x	x	0	0	1	1	x	x	x	x	x
x	x	0	1	0	0	x	x	x	x	x
x	x	0	1	0	1	x	x	x	x	x
x	x	0	1	1	0	x	x	x	x	x
x	x	0	1	1	1	x	x	x	x	x
x	x	1	0	0	0	x	x	x	x	x
x	x	1	0	0	1	x	x	x	x	x
x	x	1	0	1	0	x	x	x	x	x
x	x	1	0	1	1	x	x	x	x	x
x	x	1	1	0	0	x	x	x	x	x
x	x	1	1	0	1	x	x	x	x	x
x	x	1	1	1	0	x	x	x	x	x
x	x	1	1	1	1	x	x	x	x	x

input

- i_s1, i_s2
  : strikes (0~2)
- i_b1, i_b2
  : balls (0~3)
- i_r1, i_r2
  : four outcomes of any pitch (0~3)
  0 : a strike
  1 : a foul ball
  2 : a ball
  3 : anything else (such as a hit or a flyout)

output

- o_s1, o_s2
  : strikes (0~3)
- o_b1, o_b2, o_b3
  : balls (0~4)

prob 3 (b)

P8a: $a(b+c) = ab+ac$