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605.411 Problem Set 4

1. Circuit a) matches 3 A AND B

C	D	R
1	1	1
1	0	0
0	1	0
0	0	0

.

Circuit b) matches 1 A NAND B

C	D	R
1	1	0
1	0	1
0	1	1
0	0	1

2. (a)

C	D	R
1	1	1
1	0	0
0	1	0
0	0	1

(b) This same result could be produced from a Exclusive-NOR Gate

3. (a) The instruction cvt.w.s can produce incorrect results. For, since the range on a floating point is larger then the range of integers, range errors can result when doing conversions.

(b) The instruction cvt.s.w can also produce incorrect results. Since integers can have many more significant digits then floating point numbers, loss of precision errors can occur when converting from integers to floats. For example 123456789

4.

x	y	z	F
0	0	0	1
0	0	1	1
0	1	0	0
0	1	1	0
1	0	0	0
1	0	1	1
1	1	0	0
1	1	1	1

5.