Binary Arithmetic Using 74LS83

DECIMAL PROBLEM	BINARY OPERAND (A)	+	BINARY OPERAND (B)	=	BINARY SUM (Σ)	DECIMAL ANSWER
2+3		+		=		
6+9		+		=		
13 + 4		+		=		
10+15		+		=		
11+14		+		=		
13+12		+		=		
15+15		+		=		

Subtraction using 2s Complement

Solve using 4-bit, 2s complement numbering system (disconnect Carry Out)

DECIMAL PROBLEM	BINARY OPERAND (A)	+	BINARY OPERAND (B)	=	BINARY SUM (Σ)	DECIMAL ANSWER
3 + 4		+		=		
2 + (-2)		+		=		
3 - 5		+		=		
7 - 6		+		=		
7 - 7		+		=		
7 - 8		+		=		
5 + 5		+		=		
-2 + (-7)		+		=		

Why do the last two problems produce an incorrect answer?