HW #5 Chapter 5

13. Use the Backtracking algorithm for the Sum-of-Subsets problem (Algorithm 5.4) to find all combinations of the following numbers that sum to $W = 52$:

    $w_1 = 2$ $w_2 = 10$ $w_3 = 13$ $w_4 = 17$ $w_5 = 22$ $w_6 = 42$

    Show the actions step by step.

15. Write a backtracking algorithm for the Sum-of-Subsets problem that does not sort the weights in advance. Compare the performance of this algorithm with that of Algorithm 5.4.

(My code is on-line.)

33. Use the Backtracking algorithm for the 0-1 Knapsack problem (Algorithm 5.7) to maximize the profit for the following problem instance. Show the actions step by step.

i	p_i	w_i	$\frac{p_i}{w_i}$	
1	\$20	2	10	
2	\$30	5	6	
3	\$35	7	5	$W = 9$
4	\$12	3	4	
5	\$3	1	3	

← trace by showing state-space tree

43. Modify the Backtracking algorithm for the Hamiltonian Circuits problem (Algorithm 5.6) so that it finds a Hamiltonian Circuit with minimum cost for a weighted graph. How does your algorithm perform?

(Write program - tsp?)