

Name: _____

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Algorithms, Knapsack Problem

1. Fill in the table to solve this instance of the knapsack problem.

```

FUNCTION KnapSack(items, capacity)
    table = [[0] * (capacity + 1)] * (n + 1)
    FOR i IN [0 ..< n]
        FOR cap IN [0 ..= capacity]
            v = items[i].value
            w = items[i].weight
            withoutItem = table[i - 1][cap]
            withItem = table[i - 1][cap - w] + v
            table[i, cap] = max(
                withoutItem, withItem)

```

ITEM	VALUE	WEIGHT
1	3	4
2	2	3
3	4	2
4	4	3

Capacity = 6

Fill in this table

Capacity Available	6					
	5					
	4					
	3					
	2					
	1					
	0					
		0	1	2	3	4
		Number of Items Considered				

2. What should be returned by the function?