

192-1196 section
Home work #5

	length							
	0	1	2	3	4	5	6	
0	0	0	0	0	0	0	0	
pieces 1	0	1	2	3	4	5	17	
2	0	1	5	6	10	13	16	
3	0	1	5	8	7	11	15	
4	0	1	5	8	9		12	
5	0	-	-	-	-	-	9	
6	0	-	-	-	-	-	6	

All possible solutions:

Revenue = 0	17	16	15	12	9	6
pieces = 0	1	2	3	4	5	6

Task #2

```
int maxRevenue ( price [ ], n ) {
```

```
    int reference [n+1][n+1]
```

```
    for ( i 0 To n )
```

```
    { for ( j 0 To n )
```

```
    { if ( i or j = 0 )
```

```
    { reference [0][0] = 0 ;
```

```
    { else {
```

```
    { if ( j < 1 ) { reference [i][j] =
```

```
    { reference [i-1][j] } ;
```

```
    { else {
```

```
    { reference [i][j] =
```

```
    { maxRevenue ( price [i-1] +
```

```
    { reference [i][j-1] ,
```

```
    { reference [i-1][j] ) ;
```

```
    { } ;
```

```
    { } ;
```

```
    { }
```

```
    return reference [n][n]
```

```
}
```

Task # 3

Rod length = 6

cutting 2 pieces of length = 6

$$\frac{3}{3} = 16 \rightarrow \text{max}$$

$$\frac{4}{4} \frac{2}{2} = 14$$

$$\frac{5}{5} \frac{1}{1} = 11$$

Rod length = 4 & 3 pieces

$$1 \ 1 \ 2 = 1 + 1 + 5$$

Rod length = 5 3 pieces

$$1 \ 1 \ 3 = 1 + 1 + 8 = 10$$

$$1 \ 2 \ 2 = 1 + 5 + 5 = 11$$

Rod length = 6 3 pieces

$$1 \ 1 \ 4 = 1 + 1 + 9 = 11$$

$$1 \ 2 \ 3 = 1 + 5 + 8 = 14$$

$$2 \ 2 \ 2 = 5 + 5 + 5 = 15$$

Rod length = 6 4 pieces

$$1 + 1 + 1 + 3 = 1 + 1 + 1 + 8 = 11$$

$$1 + 1 + 2 + 2 = 1 + 1 + 5 + 5 = 12$$

~~1 + 1 + 1 + 1 + 2 = 1 + 1 + 1 + 1 + 5 = 12~~

rod length = 6 pieces = 5

$$1 + 1 + 1 + 1 + 2 \neq 9$$

rod length = 6 pieces = 6

$$1 + 1 + 1 + 1 + 1 + 1 = 6$$

Task # 4

Rod with length = 6 should be kept as it is.

```
int optimalSegments(int price[], n) {
```

```
    int ref[n][n];
```

```
    for i 0 To n
```

```
        for j 0 To n
```

```
            if i or j = 0
```

```
                ref[0][0] = 0
```

```
            else
```

```
                if (j < 1) {
```

```
                    ref[i][j] = ref[i-1][j]
```

```
                else
```

```
                    return optimalSegments(
                        ref[i][j] =
```

```
                            price[i-1] + ref[i][j-1], n)
```

```
                }
            }
        }
```

```
    return i, j
```

```
}
```