

Homework 1

1. $1, \log n, (\log n)^2, n^3, \left(\frac{3}{2}\right)^n, 4^n, n!$

2.

	1	2	3	4	5	6
Push(S, 1)	1					
Push(S, 3)	1	3				
Pop(S)	1					
Push(S, 8)	1	8				
Pop(S)	1					

3.

	1	2	3	4	5	6
En(Q, 4)	4					
En(Q, 1)	4	1				
En(Q, 3)	4	1	3			
De(Q)		1	3			
En(Q, 8)		1	3	8		

4.

InsertionTail(newkey)

```

newnode.key = newkey;
newnode.next = NULL;
node = Link.head;
while(node.next != NULL) node = node.next;
node.next = newnode;

```

InsertionHead(newkey)

```

newnode.key = newkey;
newnode.next = Link.head;
Link.head = newnode;

```

Deletion()

```

temp = Link.head;
Link.head = Link.head.next;
free(temp);

```

5.

```

TreePredecessor(x)
if(x.left != NULL) {
    y = x.left
}

```

```
        while(y.right != NULL)
            y = y.right;
        return y;
    }
    y = x.parent;
    while(y != NULL and x == y.left) {
        x = y;
        y = y.parent;
    }
    return y;
```