H.W. 5

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a) $\Theta(N)$. All operations are order N
b) $\Theta(N)$. The output is length $N+1$.
c) Yes.
d) $\Theta(N^2)$
e) $\Theta(N)$
f) No.
g) $\Theta(N)$
h) $\Theta(N)$
i) $\Theta(N^2)$
j) $\Theta(logN)$
k) $\Theta(N^2)$
l) $\Theta(N^2)$
m) $\Theta(N^{log_2 3})$
n) $\Theta(N^{log_2 3})$
o) $\Theta(N^{log_2 3})$
p)

```
KTHROOT(A, K, N)
   tolerance = 0.1^N
   guess = N/2
   if n<0:
      lower = n
      upper = 0
   else:
      lower = 0
      upper = n
   while guess^K - A > tolerance :
      if guess^K- A > 0:
         lower = guess
         guess = (lower+upper)/2
```

```
    else:
        upper = guess
        guess = (lower+upper)/2
return guess
```

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a)