Problem type 1:

Provide the upper-asymptotic bound (O-notation) of the following recurrence:

> *(See variants below)*

a. **BYB**

$T(n) = 2T(n-1) + 1$ and $T(1) = 1$

b. **BYE**

$T(n) = T\left(\frac{n}{2}\right) + 1$ and $T(1) = 1$

c. **BYA**

$T(n) = n \cdot T(n-1) + 1$ and $T(1) = 1$

d. **BYF**

$T(n) = T(n-1) + n$ and $T(1) = 1$

e. **BYH**

$T(n) = 2T\left(\frac{n}{4}\right) + \sqrt{n}$ and $T(1) = 1$

f. **BYD**

$T(n) = T\left(\frac{n}{4}\right) + \sqrt{n}$ and $T(1) = 1$

g. **BYC**

$T(n) = 4T\left(\frac{n}{2}\right) + n^2$ and $T(1) = 1$

h. **BYG**

$T(n) = 2T\left(\frac{n}{2}\right) + n^2$ and $T(1) = 1$