$$\text{RSolve}\left[\left\{W[n] == W\left[\left\lfloor \frac{n}{2} \right\rfloor\right] + W\left[\left\lceil \frac{n}{2} \right\rceil\right] + n - 1,\ W[1] == 0\right\},\ W[n],\ n\right]$$

$$\text{RSolve}\left[\left\{W[n] == -1 + n + W\left[\text{Ceiling}\left[\frac{n}{2}\right]\right] + W\left[\text{Floor}\left[\frac{n}{2}\right]\right],\ W[1] == 0\right\},\ W[n],\ n\right]$$

Assume n = 2^k and put A[k] = W[n].

$$W[n] == W\left[\left\lfloor \frac{n}{2} \right\rfloor\right] + W\left[\left\lceil \frac{n}{2} \right\rceil\right] + n - 1,\ W[1] == 0$$

becomes

$$W\left[2^k\right] == W\left[\frac{2^k}{2}\right] + W\left[\frac{2^k}{2}\right] + 2^k - 1,\ W[1] == 0$$

$$W[n] == W\left[\left\lfloor \frac{n}{2} \right\rfloor\right] + W\left[\left\lceil \frac{n}{2} \right\rceil\right] + n - 1,\ W[1] == 0$$

or

$$W\left[2^k\right] == W\left[2^{k-1}\right] + W\left[2^{k-1}\right] + 2^k - 1,\ W\left[2^0\right] == 0$$

or

$$W\left[2^k\right] == 2\,W\left[2^{k-1}\right] + 2^k - 1,\ W\left[2^0\right] == 0$$

or

$$A[k] == 2\,A[k-1] + 2^k - 1,\ A[0] == 0$$

$$\text{RSolve}\left[\left\{A[k] == 2\,A[k-1] + 2^k - 1,\ A[0] == 0\right\},\ A[k],\ k\right]$$

$$\left\{\left\{A[k] \to 1 - 2^k + 2^k\,k\right\}\right\}$$

So,

W[k] = n Log2[n] – n + 1 = (n – 1) Log2[n] + 1

The above holds only for n = 2^k