3) (10 pts) ANL (Recurrence Relations)

Use the iteration technique to solve the following recurrence relation in terms of n:

$$T(n) = 2T(n-1) + 2^n, for\ all\ integers\ n \geq 1$$
$$T(0) = 1$$

Please give an **exact closed-form answer in terms of n,** instead of a Big-Oh answer.