3.) Base Case:

IF $n=2$ ||| THEN $T(2) = 2$ and $2\log_2(2) = 2$

$T(2) = 2\log_2(2)$ ✓

Hypothesis: $T(n) = n \log_2(n)$ for all $n=2^k$ for some int $k>0$

Industion:

If $n=2^{k+1}$

$T(2^{k+1})$

$= 2T(2^{k+1}/2)+2^{k+1}$

$=2T(2^k)+2^{k+1}$

$=2((2^k\log 2^k)+2^{k+1})$

$=2^{k+1} \log 2^{k+1}$