

1<sup>st</sup> term  $2^0$   $T(n) = 2 \times T\left(\frac{n}{2}\right) + \log(n)$  ← This is to cancel elements

2<sup>nd</sup> term  $2^1 \times T\left(\frac{n}{2}\right) = 2 \times \left[ 2 \times T\left(\frac{n}{4}\right) + \log\left(\frac{n}{2}\right) \right]$

3<sup>rd</sup> term  $2^2 \times T\left(\frac{n}{4}\right) = 4 \times \left[ 2 \times T\left(\frac{n}{8}\right) + \log\left(\frac{n}{4}\right) \right]$

⋮

$x$ th term  $n \times T(2) = n \left[ 2(T(1)) + \log 2 \right]$

$$2^{\log n} = n$$

$x = \log n$  [using GP formula,

$$ar^{n-1} = 1$$

$$a = \frac{n}{2}, r = \frac{1}{2}$$