# Divide and Conquer Multiplication

a = length of the first\_number

b = length of the second number

m = a+b

## Method A

T ≈ O(a\*b)

## Method B

T ≈ O(a\*b)

## Method C

T ≈ O(lg(m))

## Method D (D&C)

T(m) = { if m = 2 : c , if m > 2 : 4T(m/4) + c }

T = c.m + c.log4m

T ≈ O(m)

### Conclusion

As we can see, method C is more efficient than method D with D&C.