

For  $[2, 7, 13, 19]$

Ugly numbers = 1, 2, 4, 7, 8...

	ugly numbers	k sorted list	$ugly[i] * [2, 7, 13, 19]$
1 <sup>st</sup> ugly $\rightarrow$	1	2 7 13 19	$= 1 * [2, 7, 13, 19]$
2 <sup>nd</sup> $\rightarrow$	2	4 14 26 38	$= 2 * [2, 7, 13, 19]$
3 <sup>rd</sup> $\rightarrow$	4	8 28 52 76	$= 4 * [2, 7, 13, 19]$
4 <sup>th</sup> $\rightarrow$	7	14 49 91 133	$= 7 * [2, 7, 13, 19]$
5 <sup>th</sup> $\rightarrow$	8	16 56 ... ..	$= 8 * [2, 7, 13, 19]$
:	:	:	:
:	:	:	:
:	:	:	:

These are vertical lists

$i = 0$   
 $ugly[i] = 1$

Start with  $[2, 7, 13, 19]$

- pop minimum out = 2, put 2 in  $ugly[i]$
- replace with its next in list = 4
- repeat until you find  $ugly[n]$
- See code for how to find next