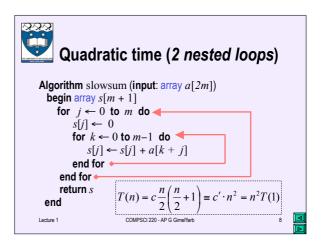
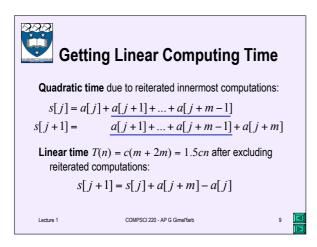


GCD(9245,7515) = 5	
$\frac{(3243,7313) = 3}{9245 \mod 7515 = 1730}$	7515 mod 1730 = 595
1730 mod 595 = 540	595 mod 540 = 55
540 mod 55 = 45	55 mod 45 = 10
45 mod 10 = 5	10 mod $5 = 0 \Rightarrow \text{GCD=5}$

Exam	ple 3: Sums of Subarrays	
	ay $(a[i]: i = 0, 1,, n - 1)$ of size $n - m + 1$ sums:	,
	$= \sum_{k=0}^{m-1} a[j+k]; j = 0,, n-m$	
	guous subarrays of size m	
	ce computation: cm operations per n total: $cm(n - m + 1)$ operations	•
	ear if <i>m</i> is fixed and quadratic if <i>m</i> is th <i>n</i> , such as $m = 0.5n$	3
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Algorithm : begin arra s[0] <- for k < end fo for <i>j</i> <	$-0 \text{ to } m-1 \text{ do } s[0] \leftarrow s[0] + a[k] \P$)	
s[/] end fo return end	- •		
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Computing Time for T(1)=1μs					
Array size	n	2,000	2,000,000		
Size / number of subarrays	m / m + 1	1,000 / 1,001	1,000,000 / 1,000,001		
Brute-force (<i>quadratic</i>) algorithm	<i>T</i> (<i>n</i>)	2 sec	> 23 days		
Efficient (linear) algorithm	T(n)	1.5 msec	1.5 sec		

