Lab 3 William De Bruce

1.) $100000000000n^2$ vs n^3 — n^3 can never catch up to other time.

$\theta(n^2)$ < $\theta(n^3)$

2.) ~~$n^2 \log(n)$ vs $n(\log(n))^{10}$~~

2.) $n^2 \log(n) < n(\log(n))^{10}$

grows faster

3.) $n^{\log n}$ vs $2^{\sqrt{n}}$

grows faster

4. 2^{2n} b/c grows faster by factor of 2

Prob #2.

1.)

i	$i \cdot i$	$\frac{n}{2}$
2	4	
3	9	
4	16	
5	25	
6	36	

$\log_2$

	times run
$n=2$,	1
$n=3$,	1
$n=4$,	2
$n=5$,	2
$n=6$,	2
$n=$,	

$k^2 \leq n$, $k \leq \sqrt{n}$

Best Case = $\theta(1)$

Worst Case = $O(\sqrt{n})$

Avg Case = $O(\sqrt{n})$