Unit 6: Asymptotic analysis and L'Hôpital's rule

Vocabulary and notation

$\ll$	$\sim$	much less than	asymptotically equal
asymptotic to	indeterminate form	continuous compounding	for sufficiently large x

Skills

- Be able to compute limiting ratios with L'Hôpital's rule
- Know when L'Hôpital's rule can be applied and when it cannot
- Know the variants of L'Hôpital's rule : one-sided, and L'Hôpital's rule at infinity,
- Know the "infinity rules" and what indeterminate forms can be evaluated without regard to the precise functions involved.
- Recognize when to take logs before applying L'Hôpital's rule .
- Recognize when to take reciprocals before applying L'Hôpital's rule .
- Know two rules for deducing $f \sim g$ when f and g are composed of simpler functions
- Know the basic scales of powers, exponentials and logarithms and how functions are ordered at infintiy within and across these scales
- Know the technical definition of "much closer to"