

# Worksheet 9

SI with Ian

Week of April 21st

## 1 Session Problems

Use L'Hopital's Rule to evaluate each of the following limits.

1.  $\lim_{x \rightarrow \infty} \frac{\ln 3t}{t^2}$

2.  $\lim_{x \rightarrow \infty} [e^x + x]^{\frac{1}{x}}$

3.  $\lim_{x \rightarrow 0} \frac{\sin 2x + 7x^2 - 2x}{z^2(z+1)^2}$

4.  $\lim_{x \rightarrow 1^+} \left[ (x-1) \tan \left( \frac{\pi}{2} x \right) \right]$

Find the most general antiderivative of the function.

1)  $f(x) = x - 3$

2)  $f(x) = \frac{1}{2} + \frac{3}{4}x^2 - \frac{4}{5}x^3$

3)  $f(x) = \sqrt{2}$