

1 Show how to evaluate the limits. Be sure to justify each step with a particular theorem or rule.

$$(A) \lim_{x \rightarrow 0} \frac{\sin^2(x)}{1 - \cos(x)}$$

$$(B) \lim_{x \rightarrow 0} \frac{\cos^2(x)}{1 - \sin(x)}$$

$$(C) \lim_{x \rightarrow \infty} \frac{x^{100}}{e^x}$$

$$(D) \lim_{x \rightarrow \infty} \frac{(\ln(x))^{100}}{x}$$

$$(E) \lim_{x \rightarrow \infty} \frac{\sqrt{x^2+1}}{x}.$$

Section 4.4 # 2,4,6,9

Section 4.5 #2,7

Section 5.2 #5

Section 5.3 #5,10