

Worksheet 14

Name:

1. Compute the limits.

(a) $\lim_{x \rightarrow \pi} \frac{\cos^2(x) + \sin(x)}{\tan(x) + 1}$

(b) $\lim_{q \rightarrow 1} \frac{\tan(\pi q)}{q^2 - 1}$

3. The functions $f(x)$ and $g(x)$ have the property that $f(3) = g(3) = 0$. The tangent line to $f(x)$ at $x = 3$ contains the point $(1, 5)$. The tangent line to $g(x)$ at $x = 3$ contains the point $(-1, 9)$. Compute $\lim_{x \rightarrow 3} \frac{f(x)}{g(x)}$.