1. Suppose f and g are differentiable on (a, b) and $\lim_{x \to b^-} f(x) = 0$ and $\lim_{x \to b^-} g(x) = 0$. Also suppose that:
$$\lim_{x \to b^-} \frac{f'(x)}{g'(x)} = L$$
prove:
$$\lim_{x \to b^-} \frac{f(x)}{g(x)} = L.$$

2. Suppose f and g are differentiable on (a, b) and $\lim_{x \to a^+} f(x) = +\infty$ and $\lim_{x \to a^+} g(x) = +\infty$. Also suppose that:
$$\lim_{x \to a^+} \frac{f'(x)}{g'(x)} = L$$
prove:
$$\lim_{x \to a^+} \frac{f(x)}{g(x)} = L.$$