Homework Set 12

3.7: L'Hospital's Rule

If the following limits are in the correct form, use L'Hospital's Rule to compute the limit.

1. $\lim_{x\to\infty} \dfrac{e^x}{x^2-1}$

2. $\lim_{x\to 0} \dfrac{\sin 6t}{\tan 3t}$

3. $\lim_{x\to 0} \dfrac{6^x-4^x}{x}$

4. $\lim_{x\to\infty} \dfrac{x^3-2x^2+1}{4x^2-3x+5}$

5. $\lim_{x\to 0^+} x^3\ln(x)$

6. $\lim_{x\to 0} (\csc x-\cot x)$

7.

$$\lim_{x\to\infty} (x - \ln x)$$

8.

$$\lim_{x\to 0^+} x^{\sin x}$$

9.

$$\lim_{x\to\infty} \left(1 - \frac{3}{x}\right)^{5x}$$

10.

$$\lim_{x\to 0^+} (1 + 4x)^{1/x}$$