THE HONG KONG POLYTECHNIC UNIVERSITY

Department of Applied Mathematics

Lightboard Project

7. Limits By L'Hopital's Rule

Evaluate the following limits.

7.1 $\lim\limits_{x\to -2} \dfrac{\cos(x^2-4)}{x^2+x-6}$ [21221 Test2]

7.2 $\lim\limits_{x\to 0^+} \dfrac{x^2 \sin\frac{1}{x}}{e^x-1}$

7.3 $\lim\limits_{x\to 0^+} e^x(\tan x)\ln(x^2)$ [21221 Test2]

7.4 $\lim\limits_{x\to \infty} 2^{-x}\ln(x^3+2x+1)$ [22231 Exam]

7.5 $\lim\limits_{x\to 0}(\dfrac{1}{x^2}-\dfrac{\sin x}{x^3})$ [21221 Test2]

7.6 $\lim\limits_{x\to \infty}(\sqrt{x+\ln x}-\sqrt{x})$

7.7 $\lim\limits_{x\to \infty} x^{(e^{-x})}$ [20211 Test2]

7.8 $\lim\limits_{x\to 0^+} \left(\dfrac{\sin x}{x}\right)^{\frac{1}{x}}$ [18192 Test2]

7.9 $\lim\limits_{x\to 0^+} x^{(1-\cos x)}$ [Modified from 22231 Test2]

7.10 $\lim\limits_{x\to \infty} \left(\dfrac{1}{x}+1\right)^{x^2} e^{-x}$