MATH 5B - Single Variable Calculus II — Spring 2019

§6.8 Models for Population Growth

In-class Activity 6.8

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Activity 1:

State the type of indeterminate form and evaluate using L'Hôpital's Rule:

(a) $\lim_{x\to 2} \dfrac{x^3-8}{x^4+2x-2}$

(b) $\lim_{x\to 1} \dfrac{\ln(x)}{x-1}$

(c) $\lim_{x\to 0} \dfrac{e^x-x-1}{\cos(x)-1}$

(d) $\lim_{x\to \infty} \dfrac{e^x}{x^2}$

Activity 2:

State the type of indeterminate form and evaluate using L'Hôpital's Rule:

$$\lim_{x\to\infty} x^3 e^{-x^2}$$

Activity 3:

State the type of indeterminate form and evaluate using L'Hôpital's Rule:

$$\lim_{x\to 0}\left(\csc(x) - \frac{1}{x}\right)$$

Activity 4:

State the type of indeterminate form and evaluate using L'Hôpital's Rule:

(a) $\lim_{x \to 0^+} x^{\sqrt{x}}$

(b) $\lim_{x \to 0^+} (1 + 4x)^{1/2x}$