INTRODUCTION TO CALCULUS

MATH 1A

UNIT 13: WORKSHEET

Hospital's rule

1: Compute the limit:

$$\lim_{x\to 0} \frac{\sin(3x)+x}{x^2+x}$$

2: Compute the limit:

$$\lim_{x\to 1}(x-1)/\log(x-1)$$

3: Find the limit:

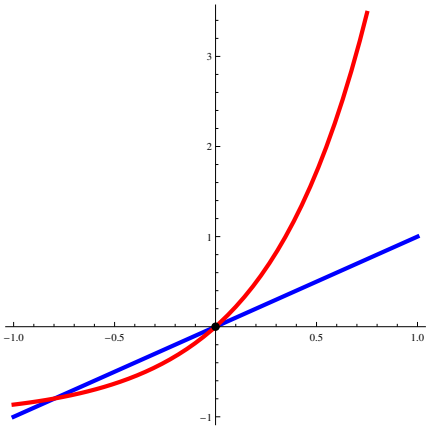
$$\lim_{x\to\infty} \log(7x+3)/\log(9x+4)$$

4: Find the limit (see Figure 1 below)

$$\lim_{x\to 0} \frac{\exp(2x)-1}{x} \ ?$$

5: Find the limit

$$\lim_{x\to -1}(x^2+2x+1)/(x+1)\ .$$

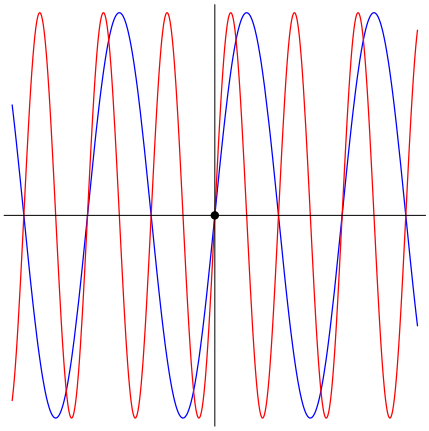


The functions $\exp *2x) - 1$ and x.

5: Apply l'Hospital's rule to get the limit of

$$f(x) = \frac{\sin(200x)}{\sin(300x)}$$

for $x \to 0$.



7: What does l'Hospital's rule tell about the limit

$$f(x) = \frac{\sin(200x)}{\sin(300x)}$$

for $x \to \infty$.

8: What does l'Hospital's rule tell about the limit

$$f(x) = \frac{\cos(200x)}{\cos(300x)}$$

for $x \to 0$.