

Calculus Workshop #5

Compute the following limits without graphing the function:

1.
$$\lim_{x \rightarrow 2} \frac{\frac{x^2}{x-1} - 4}{\frac{x+1}{x-1} - 3}$$

2.
$$\lim_{x \rightarrow 1^+} \frac{\sqrt{x-1}}{x^2-1}$$

3.
$$\lim_{x \rightarrow \frac{\pi}{2}} \tan x$$

4.
$$\lim_{x \rightarrow 0} \frac{\cos x}{x}$$

5.
$$\lim_{h \rightarrow 0} \frac{\sqrt{1+h} - 1}{h}$$

6.
$$\lim_{h \rightarrow 0} \frac{\frac{1}{\sqrt{4+h}} - \frac{1}{2}}{h}$$

7.
$$\lim_{x \rightarrow 3} \frac{\sqrt{x+1} - \sqrt{2x-2}}{x-3}$$

8.
$$\lim_{x \rightarrow 4} \frac{\sqrt{x+5} - 3}{x-4}$$

9.
$$\lim_{x \rightarrow 9^-} \frac{x\sqrt{9-x}}{x-9}$$

10.
$$\lim_{x \rightarrow 4} \frac{\frac{x+2}{x-2} - x + 1}{\frac{4}{x} - 1}$$

11.
$$\lim_{x \rightarrow 2} \frac{\frac{x}{\sqrt{x-1}} - 2}{\frac{\sqrt{x+2}}{\sqrt{x-1}} - 2}$$