

AP Calc: Limits involving Trig

Evaluate each of the following.

1.  $\lim_{x \rightarrow \frac{\pi}{4}} \sin 2x$

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

3.  $\lim_{x \rightarrow 0} \frac{\sin 3x}{x}$

4.  $\lim_{x \rightarrow 0} \frac{\tan 5x}{3x}$

5.  $\lim_{x \rightarrow 0} \frac{\sin x \cos x}{x}$

6.  $\lim_{x \rightarrow 0} \frac{\sin^2 x}{x}$

7.  $\lim_{x \rightarrow 0} \frac{\cos x}{x^2}$

8.  $\lim_{x \rightarrow \infty} \frac{\tan x}{x}$

9.  $\lim_{x \rightarrow 0} \frac{3 \sin 4x}{\sin 3x}$

10.  $\lim_{x \rightarrow 0} \frac{\sin x}{2x^2 - x}$

11.  $\lim_{x \rightarrow 0} \frac{x + \sin x}{x}$

12.  $\lim_{x \rightarrow \infty} x \left( \sin \frac{1}{x} \right)$

13.  $\lim_{x \rightarrow 0} x \left( \sin \frac{1}{x} \right)$

14.  $\lim_{x \rightarrow 0} \frac{1 - \cos x}{x}$

15.  $\lim_{x \rightarrow 0} \frac{\sin x}{x^2}$

16.  $\lim_{x \rightarrow 0} \frac{\sin x}{x^3}$

17.  $\lim_{x \rightarrow 0} \frac{1 - \cos x}{x^2}$

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

19.  $\lim_{x \rightarrow \infty} x^2 \sin \left( \frac{1}{x} \right)$

20.  $\lim_{x \rightarrow 0} \frac{\sin x}{x(x+2)}$

21.  $\lim_{x \rightarrow \infty} \frac{5x + \sin x}{x}$