

Evaluating Trig Limits

Before we move into finding the derivatives of trigonometric functions, we first need to work on evaluating a few trig limits.

Example 1: Basic Trig Limits

Determine $\lim_{x \rightarrow \frac{\pi}{2}^+} \tan x$

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Example 2: Establishing the Primary Trig Limit

Use the values of x provided in the table below to solve $\lim_{x \rightarrow 0} \frac{\sin x}{x}$

$$f(x) = \frac{\sin x}{x} \quad (\text{use radians})$$

x	-0.1	-0.01	-0.001	0.001	0.01	0.1
$f(x)$?	?	?	?	?	?

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Example 3:

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

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Example 5:

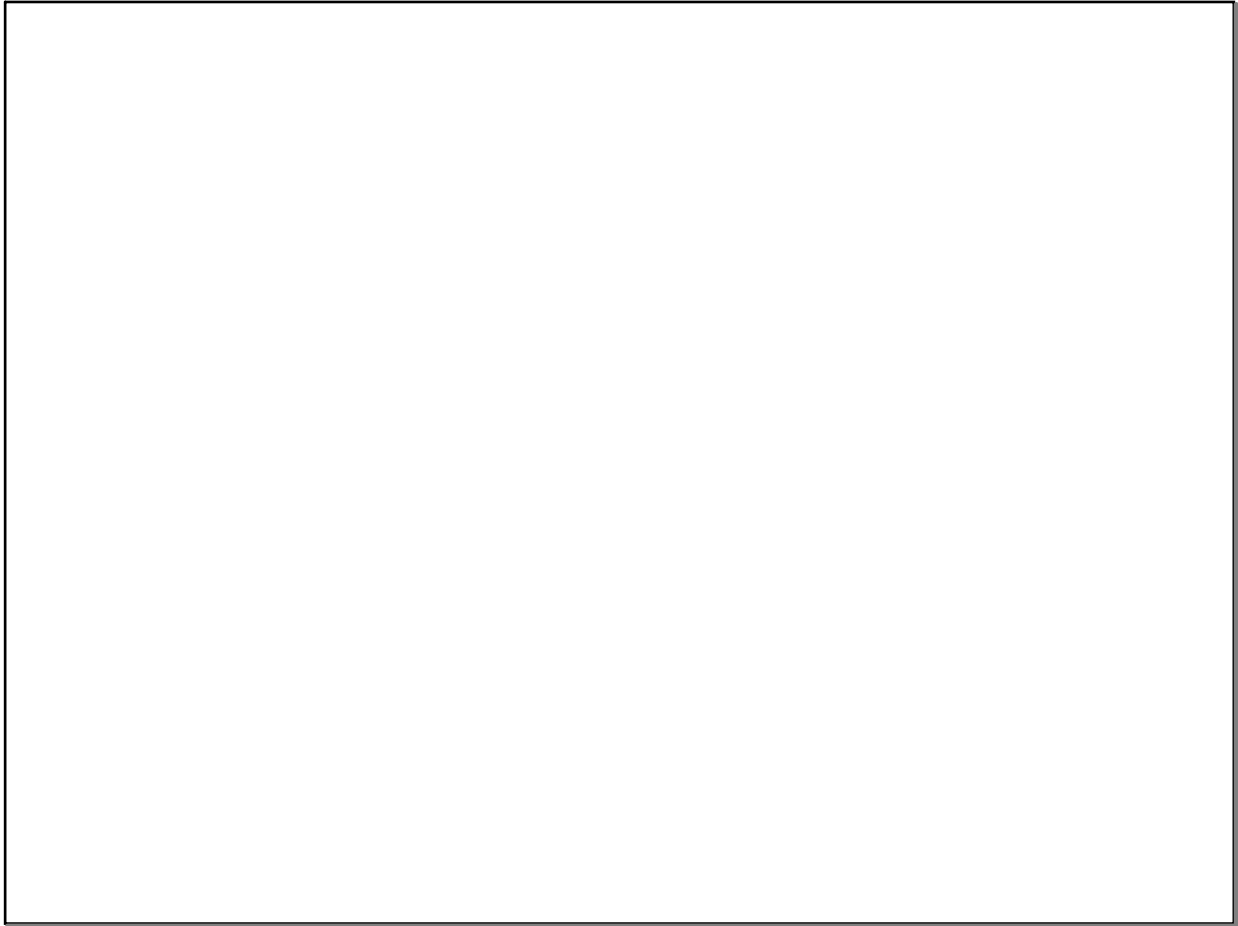
Determine: $\lim_{x \rightarrow 0} \frac{\sin(2x)}{3x}$

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Example 6:

Show that $\lim_{x \rightarrow 0} x^2 \sin\left(\frac{1}{x}\right) = 0$

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