Vector Stopping Tests

Absolute change test:

$$\| \underline{v}_{n+1} - \underline{v}_n \| < \varepsilon$$

$$|x_{n+1} - x_n| < \varepsilon$$

Relative change test:

$$\| \underline{v}_{n+1} - \underline{v}_n \| < \varepsilon \| \underline{v}_{n+1} \|$$

tol

$\| \underline{v} \|_2 \rightarrow$ sqrt(sum($\underline{v} * \underline{v}$))

$\| \underline{v} \|_1 \rightarrow$ sum(abs($\underline{v}$))

Combination test:

$$\| \underline{v}_{n+1} - \underline{v}_n \| < \varepsilon_a + \varepsilon_r \| \underline{v}_{n+1} \|$$

Function test for $\underline{f}(\underline{x}) = \underline{0}$:

$$\| \underline{f}(\underline{v}_n) \| < \varepsilon$$

$\| \|_2$

$\| \|_1$

$\| \|_\infty$