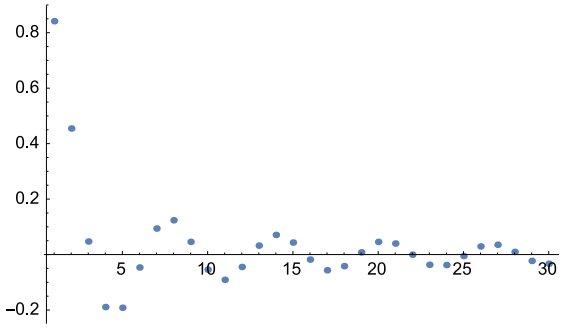
Use a graph of the sequence to decide whether the sequence is convergent or divergent. If the sequence is convergent, guess the value of the limit from the graph and then prove your guess.[1]

$$a_n = \frac{\sin(n)}{n}$$

The sequence is graphed below.



From the graph of the sequence, it seems that the sequence has a limit of 0.

Note that

$$\begin{aligned} |a_n| &= \left|\frac{\sin(n)}{n}\right| \\ &= \frac{|\sin(n)|}{|n|} \end{aligned}$$

Since $-1 \leq \sin(n) \leq 1$ and n is positive, we get

$$|a_n| \leq \frac{1}{n}$$

so

$$\lim_{n\to\infty} |a_n| = 0$$

We know if $\lim_{n\to\infty} |a_n| = 0$, then $\lim_{n\to\infty} a_n = 0$, so

$$\lim_{n\to\infty} \frac{\sin(n)}{n} = 0$$

[1] Stewart, *Calculus, Early Transcendentals*, p. 705, #58.