ICP Sampling Sinusoids

- Consider a single sinusoid:

$$x(t) = 10\sin(2\pi \times 150\mathrm{t})$$

- What is the minimum sampling frequency for this signal?
- Sketch the frequency spectrum from -600Hz to 1kHz if the signal is sampled at 400 Hz

ICP 1 - Sampling Sinusoids

- Consider a single sinusoid

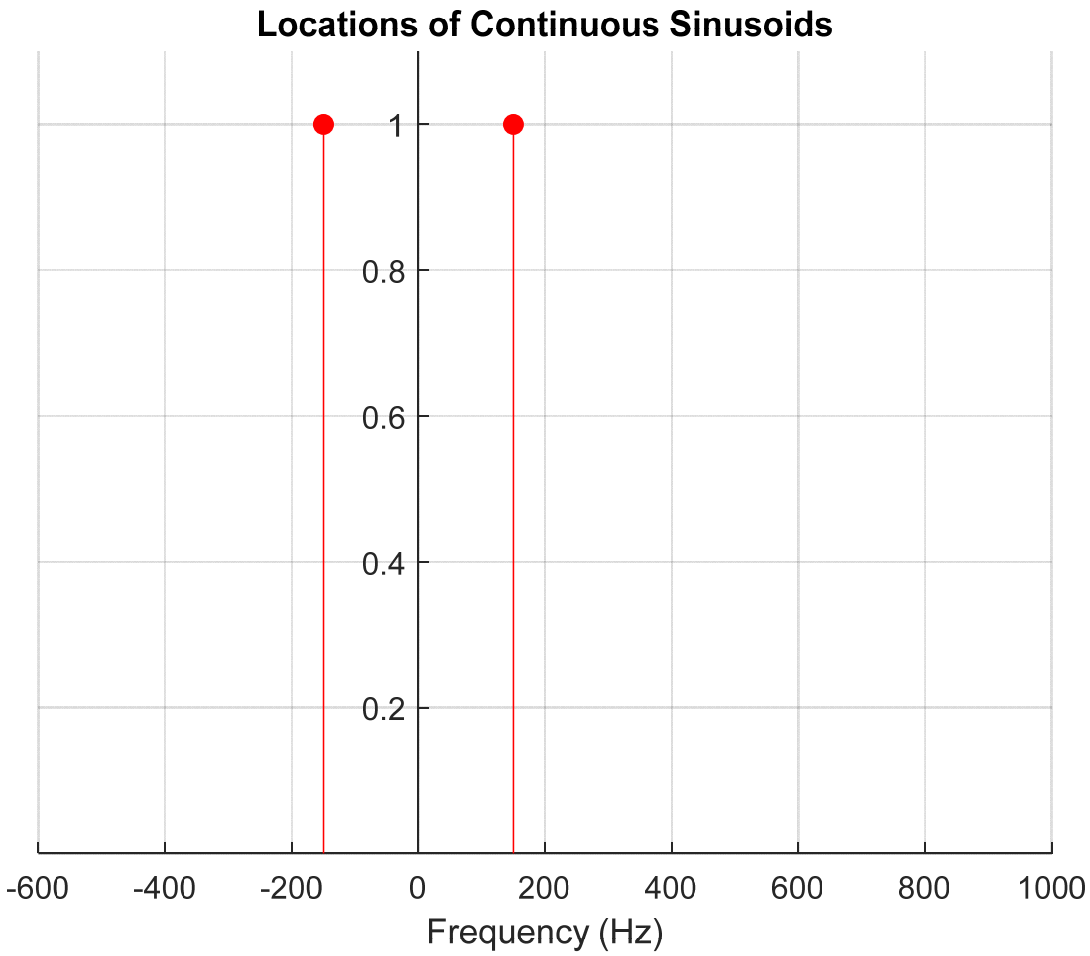
$$x(t) = 10\sin(2\pi \times 150\mathrm{t})$$

- What is the minimum sampling frequency for this signal?

  The (maximum) frequency is 150 Hz, hence the signal must be sampled at 300 Hz or higher

- Sketch the frequency spectrum from -600Hz to 1kHz if the signal is sampled at 400 Hz

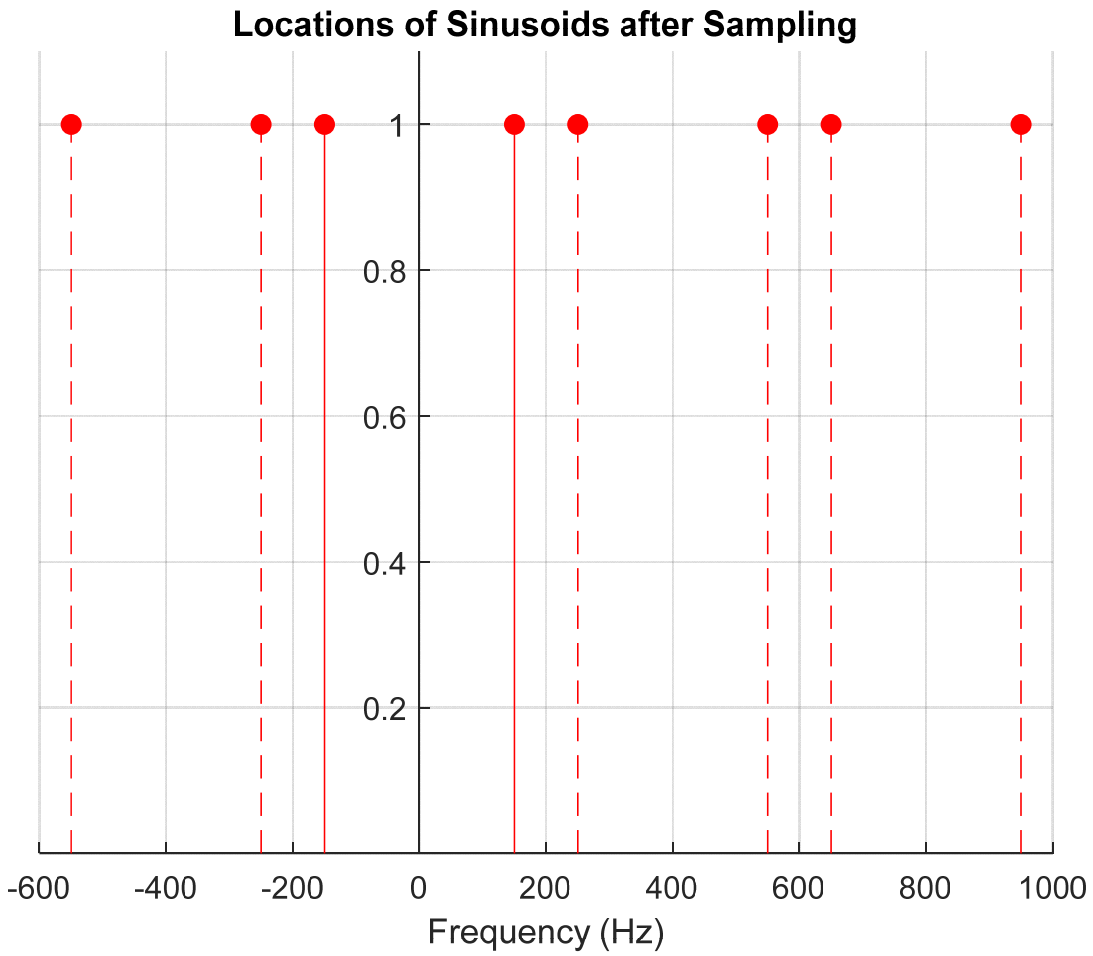
Continuous Sinusoid Locations



F1 = 150 Hz

F2 = -150 Hz

Sampled Sinusoid Locations



-550
-250
-150
150
250
550
650
950