

Problem-solving session

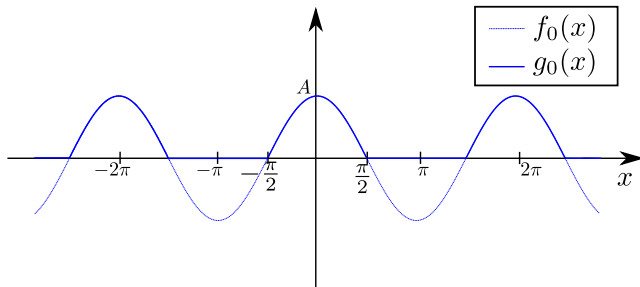
Properties and examples of FS

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Half-wave rectifier

In this problem, a RF multiplier is considered again in line with the laboratory sessions. For this purpose, consider the following signal and the half-wave rectified signal:



- 1 Calculate the FS of the rectified signal.
- 2 Compare the power of the signal before and after rectifying, has the power been increased or reduced? How much?
- 3 Show that, for any real-valued signal, the couple of harmonics $a(k)$ and $a(-k)$ yields a sinusoidal signal.
- 4 Calculate the amplitude of the fourth harmonic.

Full-wave rectifier

5) Repeat sections 1, 2 and 4 for the following signal and the corresponding full-wave rectified signal. What method (half-wave or full-wave rectifier) is more efficient if you wish to generate the fourth harmonic? Which one is better to generate the fifth harmonic?.

