

## Fourier series and transforms - Check your knowledge

- Do you know which formulas to use in order to find the Fourier series of a function  $f$  that has period  $2\pi$ ?
- How are these formulas modified if  $f$  has period  $2L$ , or if  $f$  is even, or if  $f$  is odd?
- Do you know what to do if you are asked to write the Fourier series of a function  $f$  in complex form?
- What integration methods are typically used for the calculation of Fourier coefficients?
- If the Fourier series of a function  $f$  converge, what does it converge to?
- Do you know how to use Fourier series to solve a linear differential equation describing a forced oscillator with a periodic forcing term?
- How do you find the Fourier transform of the derivative of a function? What is it equal to? How does this result generalize to higher-order derivatives?
- If the Fourier transform of a function  $f$  converge, what does it converge to?
- Do you know what the convolution theorem says?