Vibrations and Waves by A. P. French Notes

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Contents

1 Periodic motions

- Fouriers theorem states that any repeating signal of period T can be expressed as a sum of sin waves with periods T, $T/2$, etc.

- It's important to define the domain of a SHM equation, e.g. for what values of t is the motion defined?

- SHM can be considered a projection of uniform circular motion

- That uniform circular motion can be represented by a number in the complex plane, with the projection being its real part

- Multiplication by j can be considered a counter-clockwise rotation of 90° in the complex plane

- Euler's formula states
$$e^{j\theta} = \cos\theta + j\sin\theta$$

- Multiplication of a complex number z by $e^{j\theta}$ is equivalent to a counter-clockwise rotation of z by an angle of θ