### Key Equations

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| Relationship between frequency and period |  |
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| General position in SHM |  |
| General velocity in SHM |  |
| General acceleration in SHM |  |
| Maximum displacement (amplitude) of SHM |  |
| Maximum velocity of SHM |  |
| Maximum acceleration of SHM |  |
| Angular frequency of a mass-spring system in SHM |  |
| Period of a mass-spring system in SHM |  |
| Frequency of a mass-spring system in SHM |  |
| Energy in a mass-spring system in SHM |  |
| The velocity of the mass in a spring-mass system in SHM |  |
| The *x*-component of the radius of a rotating disk |  |
| The *x*-component of the velocity of the edge of a rotating disk |  |
| The *x*-component of the acceleration of the edge of a rotating disk |  |
| Force equation for a simple pendulum |  |
| Angular frequency for a simple pendulum |  |
| Period of a simple pendulum |  |
| Angular frequency of a physical pendulum |  |
| Period of a physical pendulum |  |
| Period of a torsional pendulum |  |
| Newton’s second law for harmonic motion |  |
| Solution for underdamped harmonic motion |  |
| Natural angular frequency of a mass-spring system |  |
| Angular frequency of underdamped harmonic motion |  |
| Newton’s second law for forced, damped oscillation |  |
| Solution to Newton’s second law for forced, damped oscillations |  |
| Amplitude of system undergoing forced, damped oscillations |  |