Partial differential equations (PDEs) are mathematical equations that involve partial derivatives. Partial derivatives are derivatives of a function with respect to one or more of its variables that are not all independent. PDEs are used to model many physical phenomena, such as fluid flow, electrical potential, and waves. The solution to PDEs can be used to determine the state of a system within a region of space. PDEs are of two main types: elliptic and hyperbolic. Elliptic PDEs are those in which the highest order derivative present is a second derivative, while hyperbolic PDEs involve first-order derivatives.