Applied Mathematics Encyclopedia Article

Applied Mathematics

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Applied Mathematics

Applied mathematics is a collection of theories, techniques, and terminology that have practical application in various fields of science, including, but not limited to, astronomy, chemistry, dynamics, engineering, physics and even mathematics itself. These techniques allow scientists and mathematicians to use **equations** and models to help explain natural and theorized phenomena, create measurement parameters for physical objects and actions, and perform analysis in various disciplines. Through applied mathematics many new theories and models have been created that have dramatically advanced our understanding of the physical world.

A very simple example of the use of applied mathematics in physics is the equation **F=kma** where **F** is the **force** to be determined, **k** is a constant for a particular system of units. **K** is usually set to unity (in other words, **k**=1) when determining the force exerted by an object without consideration of the pull of the earth's gravity. The **variable m** is the mass of the object and **a** is the acceleration the object exhibits at a given moment in time. From this equation, once values for two of the variables have been determined, and assuming k=1, the remaining value can be determined. This equation, then, provides further desired information for the physical phenomenon being studied. The uses of applied mathematics through much more complex equations provide ways to quantify many observed properties of the universe as well as matters of theory that are as yet impossible to observe directly.