# Abstract

The earthquake was a disaster that occurred when the Earth's plates meet each other. The ground vibrated and occur suddenly, this vibration often happen so loud that it causes damage and volcanic eruptions .The location where the Earth's plates meet is called a *hypocenter*, if it is under the Earth's surface and it is called *epicenter* when is on the surface of the Earth. Many scientists learn about the earthquake, to measure the *epicenter* of an earthquake there is 2 ways with epicenter method and hemoseista method. Numerical methods is famous in solving numerical problem by change a continuous equation into discrete. Then, how to find an epicenter using numerical methods. Using numerical methods, the epicenter can be known their location easier and produces a high precision. Within this research, introduced Newton method which is known as a good method to change the continuous model to discrete model [12] [9]. Research will obtain and analyze site *epicenter* with precision based on observational data on Pg wave from an earthquake that occurred in Italy on August 24, 2016. Based on this research, Newton method can approached the observation data when minimum $v$ is [13.04142, 42.70973], when average $v$ is [13.23734, 42.77320], when at the moment the maximum $v$ is [3.49691, 42.87145]. With overall average numerical *error* was obtained with Newton's method is 0.23863. While the numerical *error* when $v$ is minimum is 0.15161 when $v$ is average is 0.10728, and when $v$ is maximum is 0.457002.

**Keywords:** Earthquake, Newton, Numerical, Italy, Disaster