UNM–PNM STATEWIDE MATHEMATICS CONTEST LECTURE

Archimedes' Law of the Lever and how he used it to deduce the volume of the sphere

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Archimedes' marvelous proof of the law of the lever is summarized along with comments about lingering questions surrounding his proof. Generalizing the law of the lever in our modern formulation of the center of gravity as centroid allows us to show with elementary algebra or calculus that a static object suspended freely from a point on the object hangs so that the vertical line passing through the point passes through the center of gravity of the object. But Archimedes already knew this. His "method" used comparisons of cross sections to determine volumes, like Cavalieri's principle in calculus. An inspiring example is Archimedes' derivation of the volume of a sphere using levers.

Archimedes was a physicist as well as a mathematician of great power and insight, maybe the most creative of all. Even today, his ideas stand out for their brilliance and originality.

Public Lecture in Science and Math Learning Center, Saturday, February 4, 2012, Room 102 at 10am

Refreshments served before lecture. All are welcome.

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