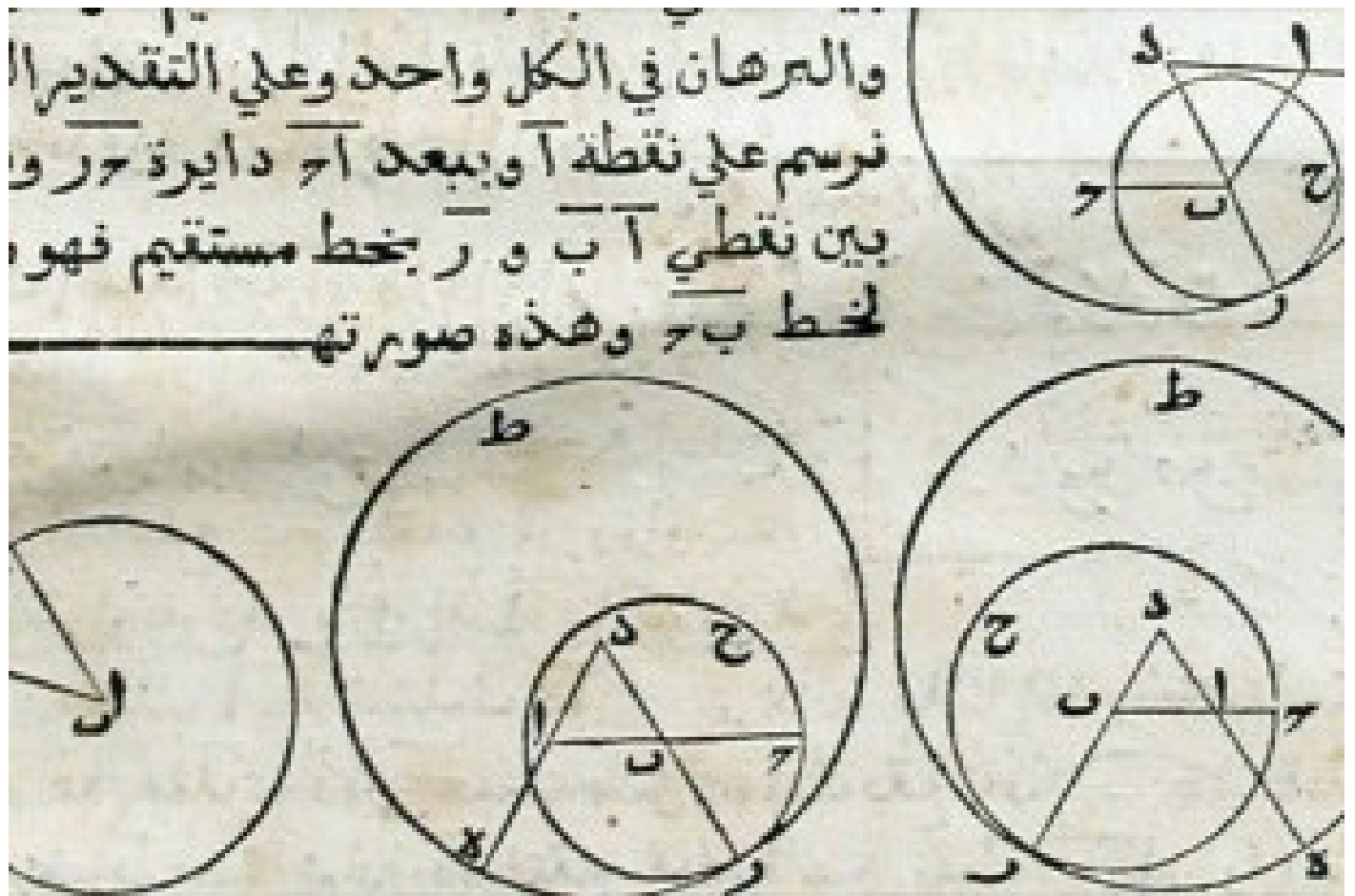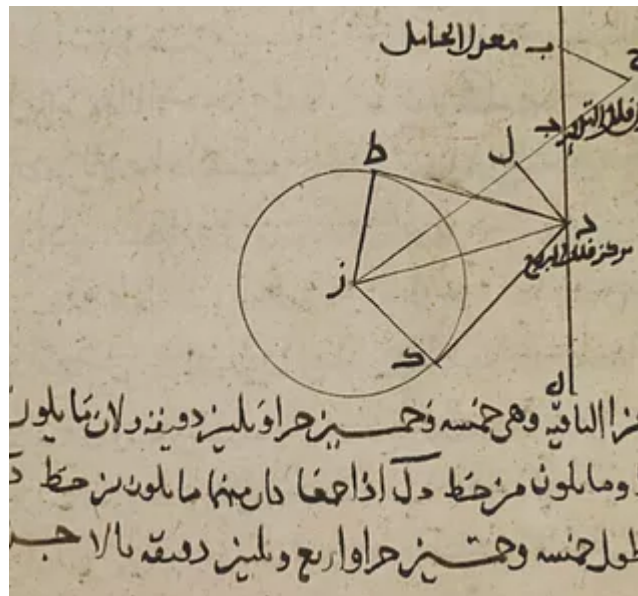# Math

Math

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The scientific contribution Muslims made to the world is the creation of mathematical science. Algebra, Geometry, Algorithm, and Arithmetic are at the heart of every scientific and social aspect of life.

Geometry

There is hardly a single device, business entity, industry, architecture built without the Arabic numerals, the decimal point, the sign and cosine, the ruler and the compass, all of which are Islamic inventions.

Muhammad Ibn Musa Al-Khowarizmi, the father of Algebra, was a mathematician and astronomer. He was summoned to Baghdad by Al-Mamun and appointed court astronomer. The first book on Algebra was written by al Khawarzmi, Kitab al Mukhtasir fi Hisab al Jabr wa 'l-muqabalah' The book of Summary Concerning the Process of Calculating Compulsion and Equation.

Abu Al-Waffa

Al-jabber is the restoration and amplification of something incomplete, and Muqabalah is the balancing of the two sides of an equation. Al-Khowarizmi emphasized that he wrote his

Algebra book to serve the practical needs of the people concerning matters of inheritance, legacies, partition, lawsuits, and commerce.

In the 12th century, Gerard of Cremona and Roberts of Chester translated the Algebra of Al-Khowarizmi into Latin. Mathematicians used it all over the world until the 16th century. Mathematics as a science was found during the 10th century by mathematicians Al-Kharaji (d1000), Ibn al-Haytham, (d1040), and Umar al-Khayyam (d1130).

The greatest Astronomical Geometry

Ibn al-Haytham, who was a Physicist, Astronomer and Mathematician used his math genius for the development of optics. In his book Kitab al-Manazir (The Book of Optics), he demonstrated the second law of refraction or the incident ray. In a masterly faction, he described the functions of the eye such as the connectives, iris, corona, and lens. He also showed the interrelation between the various parts.
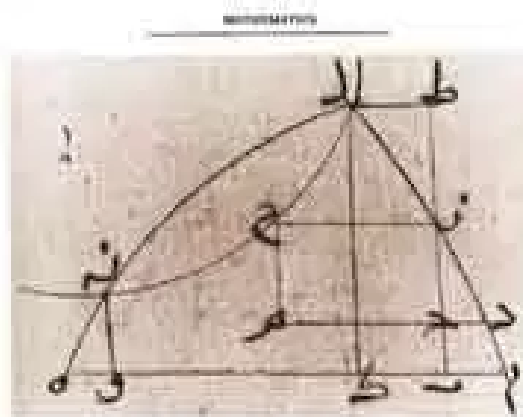

Figure 5.1
Demonstration of a Trinomial Equation by the Mathematician Who Was Also a Poet. MS Illustration from a Text on the Algebra of Omar Khayyam. Copy. Baku, Fourteenth Century.
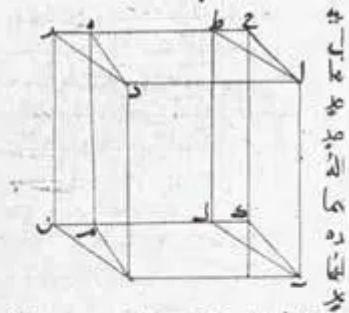
Abu Al-Waffa

Ibn Al Haytham proved that the light enters the eye from an object or a "form" and he provided the mathematic models to prove it. He applied a geometrical method to the physical doctrine of "forms." He discussed whether the "form" large or small in color can enter through the pupil and make its way to the brain. His theory of vision is the correct theory of today's physiology.

In the history of Mathematics, Ibn al Haytham secured a notable place by his treatment of the problem now bearing his Latinized name, Alhazen. He figured out the mathematical formula governing the entry and reflection of light at given three points, such as the eye and a point on a spherical convex mirror and the retina.

قد يحيط بهذه سطوح متوازية بعضها بعض وهي توزن لكن
طلعه وبقابلها سطح طلعه مستزكذا يصير محصوره
بما الذان لين ط ل ك

سرفاقول ان يحيط به وترتساوبان برهانه ان ثم
أرى محصر لانهما يقاعده الحذو حملها واحروجها
هوط أولك وذلك بمحصر تساوي محصر بلانهما
بما واحد وبمعا على خط أوا احدو هورك أومى