# Arabic Mathematics

**Enlightening summary #1:** Section 5.5 outlines the rise of arabic power through the founding of Islam. The creation of The House of Wisdom, and mass translations of Greek works enabled considerable advancements for arabic mathematics. We are introduced to Al-Khowarizmi who is largely credited for bringing the Hindu system of numerals, and the beginnings of western algebra to Europe. Abu Kamil, another great arabic writer and algebraist developed a system for adding and subtracting square roots, as well as equations with irrational coefficients. Thabit ibn Qurra also made many contributions, he demonstrated the law of Cosine and even drew up the same proof we used in class to prove Euclid's parallel postulate. Al-Karkhi studied the the algebra of polynomials, exploring the rules of exponents. He also is credited for deducing the algorithm for binomial expansion. The section concludes with Omar Khayyam's method for solving cubic functions with intersecting conic sections and a quick overview of arabic astronomy.

**Enlightening summary #2:** The additional reading delves more into detail on most of what the text book mentions. There is a large emphasis on several induction style demonstrations specifically on the derivations for combinatorial formulas. We also see a deeper exploration into spherical trigonometry.

**Interesting:** I thought the section at the end of the additional reading that talks about how Al-Kashi was able to calculate $sin(1)$ to 18 digits was interesting. Especially since IEEE double precision will only spit out 16 digits of accuracy.

**Confusing:** I'm surprised that there is no mention of multinomial expansion. It seems like they had all the tools to get there.