

CO 480 Week 7 Learning Goals

By the end of this week, students should be able to...

- Discuss Viète's contributions to algebra and how these influenced Fermat
- Discuss the Renaissance age. Identify some key artists and some of their contributions. (For example, van Eyck, Durer and projective geometry)
- Describe how to use a set of Napier's Bones.
- Explain how Fermat was different from his mathematical contemporaries at the time. Some examples might include the age which he started, that mathematics was a hobby, his work in a field that wasn't well studied, his lack of personal correspondence, his influences, etc.
- Discuss his dispute with Descartes.
- Identify Book II Problem 8 in Diophantus' Arithmetica. Relate this problem to Fermat's Last Theorem.
- Be able to use Fermat's Little Theorem and the Binomial Theorem to solve a problem
- Define the binomial coefficients and be able to solve simple proofs with this concept
- Identify which numbers can and cannot be written as the sum of two squares.
- Describe the Method of Infinite Descent
- State Fermat's Little Theorem. Be able to use this theorem in a proof.
- Use the Method of Infinite Descent to solve problems (See assignment 4 for an example)
- Identify Fermat's contributions to Fermat's Last Theorem (eg. the $n = 4$ case). You need not replicate the proof.
- Identify which primes and numbers can and cannot be represented as the sum of two squares.