History of Mathematics Math 629

Third Group Homework: 14 February 2024
Not to be handed in, but should be discussed.

Some additional work on cubics

1. Here is another cubic to solve completely: $x^3 + 2x + 4i = 0$, where $i = \sqrt{-1}$ is the imaginary unit, a square root of -1. You will find the example on the bottom of page 3 of my notes, as well as the formula $(-i)^3 = i$ useful for this.

2. Watch the last part of Marcus du Satoy's documentary on the History of Mathematics. Can you find a discrepancy between what he presents and what the book presents about the history of solving the cubic? Please investigate this, seeking sources to corroborate one or the other.

3. **Challenge:** Can you use methods, described either in the book, or in my notes, to solve the quartic,
$$x^4 - 10x^3 + 4x + 8 = 0\,?$$