Algebraic and Transcendental Numbers

The goal of the presentation is to discuss the differences between algebraic and transcendental numbers. Articles which are worth looking at include

- http://en.wikipedia.org/wiki/Algebraic_number

- http://en.wikipedia.org/wiki/Transcendental_number

- http://en.wikipedia.org/wiki/Gelfond-Schneider_theorem

Your presentation should include

- A discussion of the difference between algebraic and transcendental numbers.

- A proof that if α is algebraic so is $1/\alpha$

- A discussion of the Gelfond-Schneider theorem

- Several examples of transcendental numbers

In addition, your presentation should include AT LEAST one of the following

- A proof, that π is transcendental using the facts that

  - $e^{\pi i} = -1$

  - If α is algebraic then e^{α} is transcendental

  (The second of these is from the Lindemann-Weierstrass theorem)

- A discussion of what it means for a $(X, +, *, /, -, 0, 1)$ to be "Algebraically Closed". Similarly you should mention that $\mathbb{C}$ is algebraically closed.

- A discussion of the fact that the quintic can't be solved by radicals (including a little bit of the history)

You should also feel free to expand on the above in any directions you would like (so long as they are related to the topic). If you have any questions regarding the presentation feel free to e-mail your TA or Dr. Ackerman.