Maybe write a sentence or two of introduction.

Definition 1. *A **rational number** is a fraction $\frac{a}{b}$.* *← careful: what are a & b? Note that $b \neq 0$!*

Example 2. $\frac{1}{2}$. *← You need to write a sentence!* ◇

**Example 3.** A number that isn't rational is the number $\pi = 3.14159$. *← First, be careful, $\pi = 3.14159\ldots$. Give some explanation why! This is hard for π or e. Maybe try $\sqrt{2}$.*

We now prove that the rational numbers are indeed a field.

If one of your classmates is reading this, they might not know what countable means. Before the theorem, you could write a sentence explaining that.

Theorem 4. *The set of rational numbers $\mathbb{Q}$ is countable.*

Proof. We can see this pretty easily by looking at the following diagram. That diagram shows us
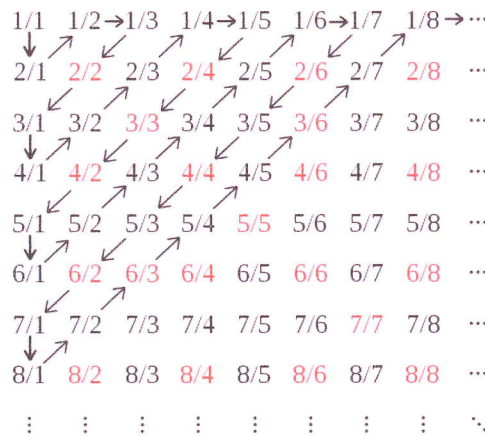
This looks suspiciously like the figure in wikipedia. Be sure to cite your sources!!

← you mean "count"?

FIGURE 1. We show the rationals by counting the black numbers in the order shown. The red numbers are the redundant ones.

that the positive rational numbers are countable. We can then count all the rational numbers by starting with zero, and then using this counting but overlaying the negative rationals. In other words, we enumerate the rationals

$$0, 1, -1, 2, -2, \frac{1}{2}, -\frac{1}{2}, \frac{1}{3}, -\frac{1}{3}, \ldots.$$

Good to then count all, not just ☐ the positive ones.

This is an abrupt ending. You might include a last sentence of conclusion.