* Principle: When the set S consists of numbers and is finite, the value of a number belonging to S cannot be decreased infinitely often, always to a distinct number belonging to S.

Examples presented in class on using the principle of infinite descent[1]:

- $\sqrt{2}$ is irrational.

- For a positive integer k, $\sqrt{k}$ is irrational if it is not an integer.

- No integral solutions to $a^2 + b^2 = 3(s^2 + t^2)$, other than the trivial solution $a = b = s = t = 0$.

- *Sylvester-Gallai theorem*: If there are n $(n \geq 3)$ points on the plane such that not all on a line, then there exists a line passing through exactly two of these points.