§6.f Approximation of irrational numbers [29Q]

In the next exercises we will use the following definitions.

Definition 6.f.1. [0BS]

Definition 6.f.2. [0BT]

(We define $\varphi(x) = x - \lfloor x \rfloor$, note that $\varphi(3,1415) = 0,1415$ but $\varphi(-4,222) = 0,778$ because $\lfloor -4,222 \rfloor = -5$).

Exercises

E6.f.3 [0BV]

E6.f.4 [0BW]

E6.f.5 [0BY]

E6.f.6 [0C1]

E6.f.7 [0C3]

E6.f.8 [0C5]

§6.g Algebraic

Definition 6.g.1. [0C7]

We note that every rational $\alpha = n/m$ is algebraic, as the root of $p(x) = mx - n$.

Definition 6.g.2. [0C8]

We want to show that algebraic numbers are a field.

Exercises

E6.g.3 [0C9]

E6.g.4 [0CB]

E6.g.5 [0CC]

E6.g.6 [0CD]

E6.g.7 [0CF]

E6.g.8 [0CH]

E6.g.9 [0CK]

The above shows that algebraic numbers are a field.