

**Zadatak 35.** Utvrdi imaju li sljedeći skupovi minimum, maksimum i odredi njihov infimum i supremum:

$$1) S = \left\{ n - \frac{1}{n} : n \in \mathbf{N} \right\};$$

$$2) S = \left\{ 1 + \frac{(-1)^n}{n} : n \in \mathbf{N} \right\};$$

$$3) S = \left\{ \frac{n}{n+1} : n \in \mathbf{N} \right\}.$$

*Rješenje.*

$$1) S = \left\{ n - \frac{1}{n} : n \in \mathbf{N} \right\} = \left\{ 0, \frac{3}{2}, \frac{8}{3}, \frac{15}{4}, \dots \right\};$$

$$\inf S = \min S = 0 \quad (n = 1), \quad \sup S = \infty;$$

$$2) S = \left\{ 1 + \frac{(-1)^n}{n} : n \in \mathbf{N} \right\} = \left\{ 0, \frac{3}{2}, \frac{2}{3}, \frac{5}{4}, \frac{4}{5}, \dots \right\};$$

$$\inf S = \min S = 0, \quad \sup S = \max S = \frac{3}{2};$$

$$3) S = \left\{ \frac{n}{n+1} : n \in \mathbf{N} \right\} = \left\{ 1 - \frac{1}{n+1} : n \in \mathbf{N} \right\};$$

$$\inf S = \min S = \frac{1}{2}, \quad \sup S = 1.$$