Zadatak 3. Odredi zbroj geometrijskog reda kojem su zadana prva dva člana:

1) $3,\ 1$;

2) $2,\ 1.8$;

3) $\sqrt{3},\ \sqrt{2}$;

4) $\dfrac{\sqrt{2}+1}{\sqrt{2}-1},\ 1$.

Rješenje. **1)** $3,\ 1,\ \ldots \implies a_1 = 3,\ q = \dfrac{1}{3}$;

$|q| < 1$ pa slijedi

$$S = \frac{a_1}{1-q} = \frac{3}{1-\frac{1}{3}} = \frac{9}{2};$$

2) $2,\ \dfrac{9}{5},\ \ldots \implies a_1 = 2,\ q = \dfrac{9}{10}$;

$|q| < 1$ pa slijedi

$$S = \frac{a_1}{1-q} = \frac{2}{1-\frac{9}{10}} = \frac{20}{10-9} = 20;$$

3) $\sqrt{3},\ \sqrt{2},\ \ldots \implies a_1 = \sqrt{3},\ q = \dfrac{\sqrt{2}}{\sqrt{3}}$;

$|q| < 1$ pa slijedi

$$S = \frac{a_1}{1-q} = \frac{\sqrt{3}}{1-\frac{\sqrt{2}}{\sqrt{3}}} = \frac{3}{\sqrt{3}-\sqrt{2}} \cdot \frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}+\sqrt{2}} = 3(\sqrt{3}+\sqrt{2});$$

4) $\dfrac{\sqrt{2}+1}{\sqrt{2}-1},\ 1,\ \ldots \implies a_1 = \dfrac{\sqrt{2}+1}{\sqrt{2}-1},\ q = \dfrac{\sqrt{2}-1}{\sqrt{2}+1}$;

$|q| < 1$ pa slijedi

$$S = \frac{a_1}{1-q} = \frac{\frac{\sqrt{2}+1}{\sqrt{2}-1}}{1-\frac{\sqrt{2}-1}{\sqrt{2}+1}} = \frac{\frac{\sqrt{2}+1}{\sqrt{2}-1}}{\frac{2}{\sqrt{2}+1}} = \frac{\frac{\sqrt{2}+1}{\sqrt{2}-1}}{\frac{2}{\sqrt{2}+1}}$$

$$= \frac{3+2\sqrt{2}}{2(\sqrt{2}-1)} \cdot \frac{\sqrt{2}+1}{\sqrt{2}+1} = \frac{7+5\sqrt{2}}{2};$$