Př: 56/3:

1. $\sum_{n=0}^{\infty}\left(\frac{2}{3}\right)^n=\frac{1}{1-2/3}=3$
2. $\sum_{n=0}^{\infty}\left(\frac{\sqrt{3}}{(\sqrt{3})^n}\right)^n=\frac{\sqrt{3}}{1-\sqrt{1/3}}=\frac{\sqrt{3}\left(1+\sqrt{1/3}\right)}{2/3}=3\frac{\sqrt{3}+1}{2}$
3. $\sum_{n=0}^{\infty}\frac{1}{a^{2n}}\left(1-\frac{1}{a}\right)=\frac{1-1/a}{1-1/a^2}=\frac{1}{1+1/a}=\frac{a}{1+a}$
4. $\sum_{n=0}^{\infty}\left(\sin^3 a\right)^n=\frac{1}{1-\sin^3 a}$
5. Evidetně $\sqrt{2}=q>1$ tedy diverguje!

Př: 56/4:

$$\frac{a}{1-1/3}=10$$

$$a=10\frac{2}{3}=\frac{20}{3}$$

Př: 56/5:

$$\sum_{n=1}^{\infty}\frac{n}{2^n}=\sum_{n=1}^{\infty}\sum_{m=n}^{\infty}\frac{1}{2^m}=\sum_{n=1}^{\infty}\frac{1/2^n}{1-1/2}=\sum_{n=1}^{\infty}\frac{2}{2^n}=\frac{1}{1-1/2}=2$$

Př: 56/7:

1. $100a=a+13$
   $99a=13$
   $a=\frac{13}{99}$
   $a=13\cdot\sum_{n=1}^{\infty}\frac{1}{100^n}=\frac{0.13}{1-1/100}=\frac{13}{99}$
2. $1000(a-3)=(a-3)+142$
   $999(a-3)=142$
   $a=3+\frac{142}{999}=\frac{3139}{999}$
   $a=2+142\cdot\sum_{n=1}^{\infty}\frac{1}{1000^n}=\frac{0.142}{1-1/1000}=3+\frac{142}{999}=\frac{3139}{999}$
3. $100(a-5.137)=(a-5.137)+0.081$
   $99(a-5.137)=0.00081$
   $a=5.137\frac{0.081}{99}=\frac{14129}{2750}$
   $a=5.137+0.00001\cdot\sum\frac{81}{100^n}=\frac{5137}{100}+\frac{1}{100000}\cdot\frac{80}{1-1/100}=\frac{14129}{2750}$