1081 a. Dokazati da za sve prirodne brojeve *n* važi:

$$\frac{1}{1\cdot 2}+\frac{1}{2\cdot 3}+.....+\frac{1}{n\cdot(n+1)}=\frac{n}{n+1}$$

za n= 1,

$$\frac{1}{1\cdot 2}=\frac{1}{1+1}$$

za n =2,

$$\frac{1}{1\cdot 2}+\frac{1}{2\cdot 3}=\frac{2}{2+1}; \qquad \frac{1}{2}+\frac{1}{6}=\frac{2}{3}$$

za n = 3,

$$\frac{1}{1\cdot 2}+\frac{1}{2\cdot 3}+\frac{1}{3\cdot 4}=\frac{3}{3+1}; \qquad \frac{1}{2}+\frac{1}{6}+\frac{1}{12}=\frac{3}{4}$$

Pretpostavka: n = k

$$\frac{1}{1\cdot 2}+\frac{1}{2\cdot 3}+.....+\frac{1}{k\cdot(k+1)}=\frac{k}{k+1}$$

Za n = k+1

$$\frac{1}{1\cdot 2}+\frac{1}{2\cdot 3}+.....+\frac{1}{k\cdot(k+1)}+\frac{1}{(k+1)\cdot(k+2)}=\frac{k+1}{k+2}$$

$$\frac{k}{k+1}+\frac{1}{(k+1)\cdot(k+2)}=\frac{k+1}{k+2}$$

$$\frac{k(k+2)+1}{(k+1)\cdot(k+2)}=\frac{k+1}{k+2}$$

$$\frac{k^2+2k+1}{(k+1)\cdot(k+2)}=\frac{k+1}{k+2}$$

$$\frac{(k+1)^2}{(k+1)\cdot(k+2)}=\frac{k+1}{k+2}$$

$$\frac{k+1}{k+2}=\frac{k+1}{k+2}$$