



## Potence s celimi eksponenti - vaje

**Naloga 1.** Poenostavi spodnje izraze:

a)  $\frac{5^{-2} \cdot \left(\frac{3}{5}\right)^{-3} + 3^{-3} \cdot \left(\frac{5}{3}\right)^{-1}}{5^{-3} - 3^{-3}};$

b)  $\frac{\left(\frac{4}{3}\right)^{-3} \cdot \left(\frac{3}{2}\right)^{-4} + 2 \cdot \left(\frac{2}{3}\right)^0}{3 - (-2)^{-3}};$

c)  $(0,25a^{-4}b^{-3})^2 \cdot \left(\frac{a^{-3}}{4b^2}\right)^{-3};$

d)  $(16^{n-1} : \left(\frac{1}{8}\right)^{2n-2}) : 4^{5n-3}.$

**Naloga 2.** Okrajšaj spodnje ulomke:

a)  $\frac{x^{2n-2}-1}{x^{2n}-x^{n+1}+x^{n-1}-1};$

b)  $\frac{8^{n+2} \cdot 4^{n-2}}{16^{n-1} \cdot 2^{n+5}};$

c)  $\frac{a^{4n+1}-a^{2n+1}}{a^{2n+1}-a^{n+1}}.$

**Naloga 3.** Poenostavi spodnja izraza:

a)  $\frac{u^{-2}v^2+u^2v^{-2}-2}{u^{-2}-v^{-2}} : \frac{u^{-1}v+uv^{-1}}{u^{-2}v^2-u^2v^{-2}};$

b)  $\frac{x^{-2}+y^{-2}}{xy^{-3}-x^{-3}y} \cdot \frac{x^3y^{-1}-y^3x^{-1}}{x^{-1}y+xy^{-1}}.$

**Naloga 4.** Poišči vsaj 5 stvari, katerih velikosti merimo s potencami števila 10 z negativnimi potenčnimi eksponenti (namig: masa atoma, valovna dolžina vidne svetlobe, električni tok, ki je človeku nevaren ...)



**Naloga 1.** a)  $-7\frac{1}{7}$ ; b)  $\frac{2}{3}$  c)  $4a$ ; d)  $\frac{1}{16}$ .

**Naloga 2.** a) 1; b) 2; c)  $a^n(a^n + 1) = a^{2n} + a^n$ .

**Naloga 3.** a)

$$= \frac{\frac{v^2}{u^2} + \frac{u^2}{v^2} - 2}{\frac{1}{u^2} - \frac{1}{v^2}} \cdot \frac{\frac{v^2}{u^2} - \frac{u^2}{v^2}}{\frac{v}{u} + \frac{u}{v}} = \frac{\frac{v^4 + u^4 - 2u^2v^2}{u^2v^2}}{\frac{v^2 - u^2}{u^2v^2}} \cdot \frac{\frac{v^4 - u^4}{u^2v^2}}{\frac{v^2 + u^2}{uv}} =$$

$$= \frac{(u^2 - v^2)^2(v^4 - u^4)}{(v^2 - u^2)uv(v^2 + u^2)} = \frac{(u^2 - v^2)^2}{uv}$$

;

b)

$$= \frac{\frac{1}{x^2} + \frac{1}{y^2}}{\frac{x}{y^3} - \frac{y}{x^3}} \cdot \frac{\frac{x^3}{y} - \frac{y^3}{x}}{\frac{y}{x} + \frac{x}{y}} = \frac{\frac{y^2 + x^2}{x^2y^2}}{\frac{x^4 - y^4}{x^3y^3}} \cdot \frac{\frac{x^4 - y^4}{xy}}{\frac{y^2 + x^2}{xy}} =$$

$$= \frac{(x^2 + y^2)x^3y^3(x^4 - y^4)xy}{x^2y^2(x^4 - y^4)xy(x^2 + y^2)} = xy$$

**Naloga 4.** Pobrskaj po svoji glavi ali po fizikalnih učbenikih oz. priročnikih.