

NALOGE ZA PONAVLJANJE

1. Poenostavi naslednje izraze.

- (a) $(5x^2)^4(20x^{-3})^{-4}$,
- (b) $(10a^{-4}b^6)^{-1} \cdot (0.4ab^{-2})^{-4}$,
- (c) $\left(\left(\frac{2a^9b^{-3}}{a^{-2}b^{-5}}\right) : \left(\frac{2a^4b^{-6}}{a^{-4}}\right)\right) : \left(\frac{6a-1b^{-3}}{10a^2b^{-1}}\right)$.

2. Izpostavi skupni faktor v naslednjem izrazu in izraz poenostavi.

- (a) $3^{x+3} - 3^{x+2} - 3 \cdot 3^{x+1} + 8 \cdot 3^{x-1}$,
- (b) $16^{2-x} - 3 \cdot 4^{3-2x} + 16^{1-x}$.

3. Poenostavi naslednja izraza.

- (a) $\frac{x^{2n+1}-4x^{2n-1}}{x^n+x^{n-1}}$,
- (b) $\frac{x^n-2x^{n-1}}{x^{n-1}} - \frac{x^n+2x^{n-1}}{2x^{n-1}} + \frac{x^{n+1}-4x^{n-1}}{x^n}$.

4. Izračunaj

- (a) $(\sqrt{3} + \sqrt{2} + 2\sqrt{8})^2$,
- (b) $\sqrt{6 - \sqrt{11}} \cdot \sqrt{6 + \sqrt{11}}$,
- (c) $(\sqrt{8} - \sqrt{2})\sqrt{12}$.

5. Racionaliziraj

- (a) $\frac{1}{\sqrt{3}-\sqrt{2}}$,
- (b) $\frac{2}{2\sqrt{2}+3\sqrt{3}+5\sqrt{5}}$.

6. Poenostavi

- (a) $\sqrt[4]{xy^3} \sqrt[3]{xy^2}$,
- (b) $\left(\sqrt[12]{a^2b}\right)^4$,
- (c) $\sqrt[5]{\sqrt[4]{a^{40}b^{80}}}$.

7. Poenostavi naslednje trigonometrijske izraze.

- (a) $\frac{\sin(2x)+\sin x}{4\cos^2 x-1}$,
- (b) $1 + \operatorname{tg}^2 x$,
- (c) $\frac{\cos(2x)}{2\sin^2 x - \sin(2x)}$,
- (d) $\sin^4 x + \cos^2 x + \cos^2 x \sin^2 x$,
- (e) $\operatorname{tg} x - \frac{1}{\operatorname{tg} x}$.

8. Izrazi $\sin(3x)$ s potencami $\sin x$.

9. Preveri, da velja

$$\operatorname{tg}(x+y+z) = \frac{\operatorname{tg}x + \operatorname{tg}y + \operatorname{tg}z - \operatorname{tg}x \operatorname{tg}y \operatorname{tg}z}{1 - \operatorname{tg}x \operatorname{tg}y - \operatorname{tg}y \operatorname{tg}z - \operatorname{tg}x \operatorname{tg}z}.$$

10. Reši naslednje enačbe in skiciraj grafe funkcij, ki jih podajajo.

(a) $x^3 + 3x^2 + 3x + 1 = 0$,

(b) $x^3 - 2x^2 - 5x + 6 = 0$,

(c) $x^3 + 1 = 0$,

(d) $x^4 - 1 = 0$.

11. Okrajšaj naslednja ulomka.

(a) $\frac{2x^2-x+1}{x^3-x^2+x-1}$,

(b) $\frac{8x^3-1}{2x^3+3x^2-1}$.

12. Reši enačbi.

(a) $\frac{\log_3(x-2)}{2-\log_3(2x+3)} = 1$,

(b) $\log_3(3^x + 1) \cdot \log_3(3^{x+1} + 3) = 2$.