

Vježba pred ispit -domaći rad

1.

a) x^4 b) $(a + b)^2$ c) $\left(\frac{1}{2}\right)^3$ d) $\left(\frac{2}{3}\right)^3$

2.

a) 2^4 b) 2^{-2} c) 2^9 d) $6 \cdot 2^8 + 2 \cdot 2^8 = 8 \cdot 2^8 = 2^3 \cdot 2^8 = 2^{11}$

3. Izračunaj

a) $\frac{8}{27} \cdot 9 = \frac{8}{3}$

b) $3 \cdot \left[\frac{1}{2} \cdot 3 + \frac{3}{4} \cdot 1\right] \cdot \left(-\frac{1}{3}\right)^2 = 3 \cdot \frac{9}{4} \cdot \frac{1}{9} = \frac{3}{4}$

c) $(3^2)^4 \cdot 3^2 : (3^3)^5 = 3^8 \cdot 3^2 : 3^{15} = 3^{-5}$

4.

a) 5^{20}

b) $\left(\frac{2}{3} \cdot 3\right)^{10} = 2^{10}$

c) $\left(0.5 : \frac{1}{4}\right)^5 = \left(\frac{1}{2} \cdot 4\right)^5 = 2^5$

d) $6x^6 \cdot \frac{1}{2}x^{-5} = 6 \cdot \frac{1}{2} \cdot x^1 = 3x$

e) $36x^6 : (-27x^{15}) = -(36 : 27) \cdot (x^6 : x^{15}) = -\frac{36}{27}x^{-9} = -\frac{4}{3}x^{-9}$

f) $\left(3 \cdot \frac{5}{6}\right) \cdot (a^4 \cdot a^3) \cdot (b^3 \cdot b^2) = \frac{5}{2}a^7b^5$

g) $25x^6y^2 : (-10xy) = -\frac{25}{10}x^5y = -\frac{5}{2}x^5y$

5.

a) $(3 - 4)a^{10} + \left(\frac{1}{2} + 2\right)a^5 = -a^{10} + \frac{5}{2}a^5$

b) $3 \cdot a^8 - 25a^2 \cdot (-a^6) + 2a^{14} = 3a^8 + 25a^8 + 2a^{14} = 28a^8 + 2a^{14}$

c) $3x^2 - 6x - 2x^2 - 2x = x^2 - 8x$

d) $4x^4 - 4x^2y + y^2$

e) $\frac{1}{4}a^4b^4 + 2a^3b^4 + 4a^2b^4$

f) $2 \cdot (25x^2 - 40x + 16) - 3(4x^2 - 1) = 50x^2 - 80x + 32 - 12x^2 + 3 = 38x^2 - 80x + 35$

6.

a) $1.7 \cdot 10^{-5}$ b) $1.1 \cdot 10^7$ c) $3.24 \cdot 10^{-7}$

d) $1.2 \cdot 10^7$

e) $8 \cdot 10^6$

f) $2.8 \cdot 10^{10}$

g) $5.4 \cdot 10^{-4}$

7.

a) $5\text{mN} = 5 \cdot 10^{-3}\text{N}$

b) $700\text{dam} = 7 \cdot 10^3\text{m}$

c) $0.25\text{ kt} = 2.5 \cdot 10^2\text{t}$ (t je oznaka za tonu)

d) $500\text{MW} = 5 \cdot 10^8\text{W}$

e) $400\text{mg} = 4 \cdot 10^{-1}\text{g}$

f) $0.2\text{ m} = 0.2 \cdot 10^{-1}\text{dam} = 2 \cdot 10^{-2}\text{dam}$

g) $400\text{ l} = 400 \cdot 10^{-2}\text{hl} = 4\text{hl}$

h) $0.00078\text{ A} = 0.00078 \cdot 10^3\text{mA} = 7.8 \cdot 10^{-1}\text{mA}$

i) $400\text{ nm} = 400 \cdot 10^{-3}\mu\text{m} = 4 \cdot 10^{-1}\mu\text{m}$

j) $300\text{ cm}^2 = 300 \cdot (10^{-1}\text{ dm})^2 = 300 \cdot 10^{-2}\text{ dm}^2 = 3\text{ dm}^2$

k) $5000\text{ dam}^2 = 5000 \cdot (10^{-1}\text{ hm})^2 = 5000 \cdot 10^{-2}\text{ hm}^2 = 5 \cdot 10^1\text{ hm}^2$

l) $6000\text{ cm}^3 = 600 \cdot (10^{-1}\text{ dm})^3 = 600 \cdot 10^{-3}\text{ dm}^3 = 6 \cdot 10^{-1}\text{ l}$ (1 $\text{dm}^3 = 1\text{l}$)

m) $650\text{ s} = 10\text{ min } 50\text{s}$

8. $1\text{TB} : 2\text{MB} = (1 \cdot 10^{12}\text{B}) : (2 \cdot 10^6\text{B}) = 0.5 \cdot 10^6 = 5 \cdot 10^5$

ili $1\text{TB} : 2\text{MB} = (1 \cdot 10^6\text{MB}) : (2\text{ MB}) = 0.5 \cdot 10^6 = 5 \cdot 10^5$

O: Na disk stane $5 \cdot 10^5$ fotografija.

9. $1.899096 \cdot 10^{27}\text{ kg}$