

PRIPREMA ZA 1. ISPIT ZNANJA

1. Izračunaj:

a) $\sqrt{16} = 4$

b) $\sqrt{0.25} = 0.5$

c) $-\sqrt{(-18)^2} = -\sqrt{18^2} = -18$

d) $(\sqrt{32.7})^2 = 32.7$

e) $\sqrt{0.847} \div \sqrt{0.7} = \sqrt{8.47:7} = \sqrt{1.21} = 1.1$

f) $(3\sqrt{2})^2 = 9 \cdot 2 = 18$

2. Kvadriraj:

a) $-8^2 = -64$

b) $12^2 = 144$

c) $-\left(\frac{4}{7}\right)^2 = -\frac{16}{49}$

d) $\frac{-6^2}{11} = \frac{-36}{11}$

e) $-\left(\frac{5ax}{11y}\right)^2 = -\frac{25a^2x^2}{121y^2}$

f) $(2cd^5\sqrt{6d})^2 = 4c^2d^{10} \cdot 6d = 24c^2d^{11}$

3. Izračunaj:

a) $10^{11} \cdot 10^3 = 10^{13}$

b) $7^{15} : 7^{12} = 7^3$

c) $3 \cdot 3^5 : 3^6 = 3^6 : 3^6 = 3^0 = 1$

d) $(11^3)^6 = 11^{18}$

4. Pojednostavi:

a) $-\sqrt{13} - 12\sqrt{5} + 3\sqrt{13} - \sqrt{5} = 2\sqrt{13} - 13\sqrt{5}$

b) $-4 \cdot 4^7 - 4^8 + 5 \cdot 4^7 - 2 \cdot 4^8 + 7 \cdot 3^8 - 3^8 = 1 \cdot 4^7 - 3 \cdot 4^8 + 6 \cdot 3^8$

Ime, prezime, razred _____

5. Izračunaj:

a) $0.3^6 \cdot (0.3^3 : 0.3)^6 : (0.3^3)^3 = 0.3^6 \cdot (0.3^{3-1})^6 : 0.3^9 = 0.3^6 \cdot 0.3^{12} : 0.3^9 = 0.3^{6+12-9} = 0.3^9$

b) $10000^3 : (0.00001^2 \cdot 100^3)^7 =$

$(10^4)^3 : ((10^{-5})^2 \cdot (10^2)^3)^7 = 10^{12} : (10^{-10} \cdot 10^6)^7 = 10^{12} : (10^{-4})^7 = 10^{12} : 10^{-28} = 10^{12-(-28)} = 10^{12+28} = 10^{40}$

c) $(\sqrt{8} - 3\sqrt{2})^2 =$

$(\sqrt{8} - 3\sqrt{2})(\sqrt{8} - 3\sqrt{2}) = \sqrt{8} \cdot \sqrt{8} - 3 \cdot \sqrt{2} \cdot \sqrt{8} - 3 \cdot \sqrt{2} \cdot \sqrt{8} + 9 \cdot (\sqrt{2})^2 = 8 - 3\sqrt{16} - 3\sqrt{16} + 9 \cdot 2 = 8 - 12 - 12 + 18 = 2$

6. Preračunaj: (koristi znanstveni zapis)

c) $930\,000 \text{ mg} = \text{_____ g}$

$9.3 \cdot 10^5 \text{ mg} = 9.3 \cdot 10^2 \text{ g}$

d) $0.0007 \text{ m} = \text{_____ km}$

$7 \cdot 10^{-4} \text{ m} = 7 \cdot 10^{-7} \text{ km}$

7. Popuni tablicu:

Neskrativ razlomak	Decimalni broj	postotak
$1\frac{4}{9} = 1\frac{4}{9}$	1.4	144 %
$\frac{5}{11}$	0.45	45 %
$\frac{6}{100\,000} = \frac{3}{50\,000}$	0.00006	0.006 %

8. Sažmi brojeve i popuni tablicu:

	N	N ₀	Z	Q	I	R
$\frac{2\pi}{5}$	-	-	-	-	+	+
$-(5\sqrt{3})^2 = -25 \cdot 3 = -75$	-	-	+	+	-	+
$-8\pi : \pi + 8 = -8 + 8 = 0$	-	+	+	+	-	+
$(4 - 2\sqrt{5})(4 + 2\sqrt{5}) = 16 - 4 \cdot 5 = 16 - 20 = -4$	-	-	+	+	-	+
$(\sqrt{13})^2 + \sqrt{(+13)^2} = 13 + 13 = 26$	+	+	+	+	-	+
$-3\pi - \pi = -4\pi$	-	-	-	-	+	+
$-3^2 - 1.5 = -9 - 1.5 = -10.5$	-	-	+	+	-	+

9. Djelomično korjenuj:

a) $\sqrt{40} = \sqrt{4 \cdot 10} = 2\sqrt{10}$
 b) $\sqrt{96} = \sqrt{4 \cdot 4 \cdot 6} = 2 \cdot 2\sqrt{6} = 4\sqrt{6}$

96 | 2 } 4
 48 | 2 } 4
 24 | 2 } 4
 12 | 2 } 4
 6 | 6

$-(1.2 - 0.09 : 0.3)^2 - (-1)^{11} =$
 $-(1.2 - 0.9 : 3)^2 - (-1)^{11} =$
 $-(1.2 - 0.3)^2 - (-1) =$
 $-(0.9)^2 + 1 =$
 $-0.81 + 1 =$
 0.19

10. Izračunaj:

$\sqrt{72} - 3(2\sqrt{8} - \sqrt{32}) =$
 $\sqrt{36 \cdot 2} - 3(2\sqrt{4 \cdot 2} - \sqrt{16 \cdot 2}) =$
 $6\sqrt{2} - 3(4\sqrt{2} - 4\sqrt{2}) =$
 $6\sqrt{2} - 3 \cdot 0 =$
 $6\sqrt{2}$

11. Odredi x:

$5^{3x+4} : 5^x = 5$

$3x + 4 - x = 1$

$2x = 1 - 4$

$2x = -3$

$x = -\frac{3}{2} = -1\frac{1}{2}$

12. Odredi koje su tvrdnje točne.

- a) $I \subset R$ ✓
 b) $222 \in Q$ ✓
 c) $\sqrt{16} \in I$ $4 \notin I$ ✗
 d) $Q \cup I = R$ ✓
 e) $I \cap Q = R$ ✗ $I \cap Q = \emptyset$
 f) $8\pi \notin Z$ ✓ $8\pi \in I$

13. $(-1)^n = 1$ ako je n PARAN BROJ

14. Dec. zapis razlomka $\frac{13}{72}$ je čisto periodički
Obrazloži izjavu.

$\frac{13}{72} = 13 : 72 = 0.180\bar{5}$
 NIJE ČISTO, VEĆ MJEŠOVITO PER.

15. Kako potenciramo potencije?

$(a^m)^n = a^{m \cdot n}$

16. Kako množimo potencije jednakih baza?

$a^m \cdot a^n = a^{m+n}$

17. Izračunaj pa odgovori kojem skupu pripa rješenje.

18. Izračunaj

$-4^2 = -16$	$7^0 - 1 = 1 - 1 = 0$
$-\sqrt{9} = -3$	$(6\sqrt{2})^2 = 36 \cdot 2 = 72$
$5^9 \cdot 5 = 5^{10}$	$(-1)^{18} = 1$