

2. KONTROLNA NALOGA (1. letnik)

10. 11. 2023

POPOLNO 😊

JAKOB SKOBERNE 1.a

ime in priimek, razred

Zbrano število točk: 36 /36T

Čas pisanja: 45 minut

Uporaba žepnega računalnika ni dovoljena!

Ocena:

(5)

Kriterij: 89% - 100% odl(5), 76% - 88% pd(4), 62% - 75% db(3), 50% - 61% zd(2), do 50% nzd(1)

1. Potenciraj:

a) $(3x^3y^5 - 5x^2y^4)^2 =$

2 /2T

$$= 9x^6y^{10} - 30x^5y^9 + 25x^4y^8$$

b) $(3xz + 2xy - 4z)^2 =$

3 /3T

$$= 9x^2z^2 + 4x^2y^2 + 16z^2 + \cancel{6x^2z^2} + 12xy^2 - 24xz^2 - 16xyz$$

c) $(3a^3b - 2ab^5)^3 =$

3 /3T

$$= 27a^9b^3 - 3(18a^7b^7) + 3(12a^5b^{11}) - 8a^3b^{15} =$$

$$= 27a^9b^3 - 54a^7b^7 + 36a^5b^{11} - 8a^3b^{15}$$

2. Razstavi:

a) $6x^3y^2 - 24xy^4 =$

$$= 6xy^2(x^2 - 4y^2) =$$

$$= 6xy^2(x - 2y)(x + 2y) \checkmark$$

2 /2T

b) $2x^3y^5 + 54x^6y^2 =$

$$= 2x^3y^2(y^3 + 27x^3) =$$

$$= 2x^3y^2(y + 3x)(y^2 - 3xy + 9x^2) \checkmark$$

$$= 2x^3y^2(y + 3x)(y^2 - 3x(y - 3x))$$

NEPOTREBNO

~~2x~~

c) $2a^3b - 10a^2b - 48ab =$

$$= 2ab(a^2 - 5a - 24) =$$

$$= 2ab(a + 3)(a - 8) \checkmark$$

3 /3T

d) $y^4 - 5y^2x^2 - 36x^4 =$

$$= (y^2 + 4x^2)(y^2 - 9x^2) =$$

$$= (y^2 + 4x^2)(y - 3x)(y + 3x) \checkmark$$

3 /3T

$$e) 2x^5y^5 - 8x^3y^5 - 8x^4y^7 + 32x^2y^7 =$$

4 /4T

$$= 2x^3y^5(x^2 - 4) - 8x^2y^7(x^2 - 4) =$$

$$= (2x^3y^5 - 8x^2y^7)(x^2 - 4) =$$

$$= (2x^3y^5 - 8x^2y^7)(x+2)(x-2) =$$

$$= 2(x^3y^5 - 4x^2y^7)(x+2)(x-2) =$$

$$= 2(x^2y^5(x - 4y^2))(x+2)(x-2)$$

$$f) 6a^5b^3 - 162a^2b^3 + 4a^4b^4 - 108ab^4 =$$

4 /4T

$$= 6a^2b^3(a^3 - 27) + 4ab^4(a^3 - 27) =$$

$$= 2(3a^2b^3 + 2ab^4)(a^3 - 27) =$$

$$= 2(3a^2b^3 + 2ab^4)(a-3)(a^2 + 3a + 9) =$$

$$= 2(3a^2b^3 + 2ab^4)(a-3)(a^2 + 3(a+3)) =$$

$$= 2(ab^3(3a + 2b))(a-3)(a^2 + 3(a+3))$$

$$\text{PISI : } (a^2 + 3a + 9)$$

$$\frac{162:6}{42} = 27$$

3. Poenostavi izraz in rezultat razstavi:

5 /5T

$$(2x - 5)^2 - (x - 3)(x + 3) + (x - 2)^3 + 3(x^2 - 6) - 8(2 - x) =$$

~~$$= 4x^2 - 20x + 25 - x^2 - 9 + x^3 - 6x^2 + 12x - 8 + 3x^2 - 78 - 16 + 8x =$$~~

~~$$= x^3 - 78 =$$~~

~~$$= x^3 - 78$$~~

~~$$= x^3 - 78$$~~

Na dodatnem listu

~~$$\begin{array}{r} +25 \\ -9 \\ -8 \\ +18 \\ -16 \end{array} \quad \begin{array}{r} -26 \\ +17 \\ -34 \\ -59 \end{array}$$~~

4. Poenostavi:

2 /2T

a) $(3x^4x^7)^2((2x)^2x^5)^3 =$

~~$$= 9x^{22}(4x^2x^5)^3 =$$~~

~~$$= 9x^{22} \cdot (4x^7)^3 =$$~~

~~$$= 9x^{22} \cdot 64 \cdot x^{21} =$$~~

~~$$= 576x^{43} \checkmark$$~~

$$\frac{64 \cdot 9}{576}$$

b) $(-2x^3y(-xy^2)^4)^3(-(-x)^5)^7 =$

~~$$= (-2x^3y \cdot x^4y^8)^3 \cdot x^{35} =$$~~

~~$$= (-2x^7y^9)^3 \cdot x^{35} =$$~~

~~$$= -8x^{21}y^{27} \cdot x^{35} =$$~~

~~$$= -8x^{56}y^{27} \checkmark$$~~

2 /2T

Nal. (3.)

$$\begin{aligned}
 & (2x-5)^2 - (x-3)(x+3) + (x-2)^3 + 3(x^2-6) - 8(2-x) = \\
 & = 4x^2 - 20x + 25 - (x^2 - 9) + x^3 - 6x^2 + 12x - 8 + 3x^2 - 18 - 16 + 8x = \\
 & = 4x^2 - 20x + 25 - x^2 + 9 + x^3 - 6x^2 + 12x - 8 + 3x^2 - 18 - 16 + 8x = \\
 & = x^3 - 8 = (x-2)(x^2 + 2x + 4) = \underline{\underline{(x-2)(x^2 + 2(x+2))}}
 \end{aligned}$$

$$\begin{aligned}
 & (4^2) + 3(4+3) = \\
 & = 16 + 3(7) = \\
 & = 16 + 21 = \\
 & = 37
 \end{aligned}$$

$$\begin{aligned}
 & (4^2 + 3(4+3)) = \\
 & = 16 + 21 = \\
 & = 37
 \end{aligned}$$

Jakob Školec