

Pisana provjera znanja
Algebarski izrazi

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broj bodova: 19

1.a) $(\frac{4}{5}a + \frac{5}{6}b)^2 = \frac{16}{25}a^2 + 2 \cdot \frac{4}{5}a \cdot \frac{5}{6}b + \frac{25}{36}b^2$
 $= \frac{16}{25}a^2 + \frac{4}{3}ab + \frac{25}{36}b^2$ (+1) ← Razlika kvadrata, primjena formule

b) $(ab + 5)^3 = a^3b^3 + 3 \cdot a^2b^2 \cdot 5 + 3 \cdot ab \cdot 25 + 125 \Rightarrow$ Kub binoma, primjena formule
 $= a^3b^3 + 15a^2b^2 + 75ab + 125$ (+1)

2. $(\frac{1}{3}a^3 - \frac{1}{4}b^2c)(\frac{1}{3}a^3 + \frac{1}{4}b^2c) = (\frac{1}{3}a^3)^2 - (\frac{1}{4}b^2c)^2 \Rightarrow$ Razlika kvadrata, prepoznavanje formule
 $= \frac{1}{9}a^6 - \frac{1}{16}b^4c^2$ (+1)

3. Zapiši u obliku kuba binoma

$64a^6 - 144a^4b + 108a^2b^2 - 27b^3 = (4a^2 - 3b)^3$ (+1)
↳ prepoznavanje formule (Kub binoma)

4.a) $a(a-b+1) + b(a-b+1) - (a+b-1) = (a-b+1)(a+b-1)$ (+1)
↳ izlučivanje

b) $(a+3)(3a+1)^2 - 12a(a+3) = (a+3)((3a+1)^2 - 12a)$ (+1) → izlučivanje
 $= (a+3)(9a^2 + 6a + 1 - 12a) \rightarrow$ Formule
 $= (a+3)(9a^2 - 6a + 1)$ (+1) → kvadrat razlike
 $= (a+3)(3a-1)^2$ (+1)

$$5. a) \frac{2x}{2x-2} - \frac{2x+1}{3x-3} = \frac{2x}{2(x-1)} - \frac{2x+1}{3(x-1)} = \frac{6x-2(2x+1)}{6(x-1)} \quad (+1)$$

$$\downarrow$$

Izlučivanje

$$= \frac{6x-4x-2}{6(x-1)}$$

$$= \frac{2x-2}{6(x-1)} = \frac{2(x-1)}{6(x-1)} = \frac{1}{3} \quad (+1)$$

↓
Kraćenje

$$b) \frac{3}{2x^2+2x} + \frac{2x-1}{x^2-1} - \frac{2}{x} = \frac{3}{2x(x+1)} + \frac{2x-1}{(x-1)(x+1)} - \frac{2}{x} \quad (+1)$$

↳ Izlučivanje

$$= \frac{3(x-1) + 2x(2x-1) - 4(x-1)(x+1)}{2x(x-1)(x+1)} \quad (+1)$$

$$= \frac{3x-3+4x^2-2x-4(x^2-1)}{2x(x-1)(x+1)}$$

$$= \frac{3x-3+4x^2-2x-4x^2+4}{2x(x-1)(x+1)}$$

$$= \frac{x+1}{2x(x-1)(x+1)} = \frac{1}{2x(x-1)} \quad (+1)$$

↓
Kraćenje

$$6. \left(2a - \frac{10a-9}{2a-1}\right) \cdot \frac{1-2a}{9-4a^2} = \frac{2a(2a-1)-10a-9}{2a-1} \cdot \frac{1-2a}{(3-2a)(3+2a)} \quad (+1)$$

↳ Formule

$$= \frac{4a^2-2a-10a-9}{2a-1} \cdot \frac{-(2a-1)}{(3-2a)(3+2a)} \quad (+1)$$

$$= \frac{4a^2-12a-9}{2a-1} \cdot \frac{-(2a-1)}{(3-2a)(3+2a)} \quad (+1)$$

$$= -\frac{(2a-3)^2}{(2a-3)(3+2a)} \quad (+1)$$

↳ Formule

↓
Kraćenje

$$= \frac{2a-3}{3+2a} \quad (+1)$$