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Algebarski izrazi

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1. Za koju vrijednost m se sljedeći trinomi mogu prikazati u obliku kvadrata trinoma.

$mx - 12x + 4$

$I^2 = mx^2 \mid \sqrt{\ }$

(+1) $I = \sqrt{m}\,x$

$2 \cdot I \cdot II = 12x \longrightarrow 2 \cdot \sqrt{m}\,x \cdot 2 = 12x$ (+1)

$II^2 = 4 \mid \sqrt{\ }$

$II = 2$

$4\sqrt{m}\,x = 12x \mid :4x$

$\sqrt{m} = 3 \mid ^2$

$m = 9$

2) Izračunaj

$$\frac{b}{2a^2 - ab} - \frac{4a}{2ab - b^2} = \frac{b}{a(2a-b)} - \frac{4a}{b(2a-b)}$$ (+1)

$$= \frac{b^2 - 4a^2}{ab(2a-b)}$$ (+1)

$$= \frac{(b-2a)(b+2a)}{ab(2a-b)} = \frac{(b-2a)(b+2a)}{-ab(b-2a)} = \frac{b+2a}{-ab} = \frac{-b-2a}{ab}$$ (+1)

3. Izračunaj.

$$\frac{2x}{x+2} \cdot \frac{x^2+2x}{x+1} = \frac{2x}{x+2} \cdot \frac{x(x+2)}{x+1} = \frac{2x \cdot x}{x+1} = \frac{2x^2}{x+1}$$

(+1) (+1)

4. Dokaži.

a) $a(b+c)+b(c+a)+c(a+b)=2(ab+ac+bc)$

$ab+ac+bc+ab+ac+bc=2(ab+ac+bc)$

$2ab+2ac+2bc=2(ab+ac+bc)$

$2(ab+ac+bc)=2(ab+ac+bc)$ (+1)

b) $a(b+c)-b(c+a)-c(a+b)=-2bc$

$ab+ac-bc-ab-ac-bc=-2bc$

$0+0-2bc=-2bc$

$-2bc=-2bc$ (+1)

5. Odredi član koji sadrži ab^2

$(2a-3b)(3a+b)(a-b)$

$(6a^2+2ab-9ab-3b^2)(a-b)$

$(a-b)(6a^2-7ab-3b^2)$ (+1)

$6a^3-7a^2b-3ab^2-6a^2b+7ab^2+3b^3$

$6a^3-13a^2b+4ab^2+3b^3$ (+1)

6. Umnožti u formule. (+2)

a) $(8a+3)^2=64a^2+48a+9$ /1

e) $16a^4+24a^2e^3+9e^6=(4a^2+3e^3)^2$ (+1) /1

c) $\left(a-\frac{1}{3}\right)=a^3-3\cdot a^2\cdot\frac{1}{3}+3\cdot a\cdot\frac{1}{9}-\frac{1}{27}$ (+1) /1

$=a^3-a^2+\frac{1}{3}a-\frac{1}{27}$

7. Izračunaj:

$$\frac{1}{6a-4} + \frac{a-1}{3a^2-2a}$$

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

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

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

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

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

8. Izračunaj:

$$\frac{-2a-2}{2a-6} - \frac{a+3}{3a-9} =$$

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

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

$$= \frac{3a - 3 - a - 3}{3(a-3)}$$

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

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

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