

Szorzáttá alakítások II.

1. Alakítsd a következő kifejezéseket szorzattá!

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|----|---------------------------------------|---|----|--------------------------------------|---|
| a) | $121k^{20} - 110b^8k^{10} + 25b^{16}$ | $\boxed{(01^2\gamma\Gamma\Gamma - 8q\mathcal{E})}$ | b) | $144f^2 + 100 + 240f$ | $\boxed{\mathcal{Z}(0\Gamma + f\mathcal{Z}\Gamma)}$ |
| c) | $72j^8h^9 + 144h^{18} + 9j^{16}$ | $\boxed{\mathcal{Z}(6^4\mathcal{Z}\Gamma + 8^2\mathcal{E})}$ | d) | $121 + 4j^2 - 44j$ | $\boxed{\mathcal{Z}(\Gamma\Gamma - f\mathcal{Z})}$ |
| e) | $16b^{20} - 81f^{18}$ | $\boxed{(6^2f6 - 01^2q\mathcal{V}) (6^2f6 + 01^2q\mathcal{V})}$ | f) | $-198u + 81u^2 + 121$ | $\boxed{\mathcal{Z}(\Gamma\Gamma - n6)}$ |
| g) | $9b^4 - 64v^4$ | $\boxed{(\mathcal{Z}^2\mathcal{E} - \mathcal{Z}q\mathcal{E}) (\mathcal{Z}^2\mathcal{E} + \mathcal{Z}q\mathcal{E})}$ | h) | $144x^{14} + 96x^7b^{10} + 16b^{20}$ | $\boxed{\mathcal{Z}(01^2q\mathcal{V} + \mathcal{Z}x\mathcal{Z}\Gamma)}$ |
| i) | $4b^{14} + 36x^{10} - 24x^5b^7$ | $\boxed{\mathcal{Z}(2q\mathcal{Z} - \mathcal{E}x\mathcal{E})}$ | j) | $121d^{14} - 81f^{12}$ | $\boxed{(9^2f6 + \mathcal{Z}p\Gamma\Gamma) (9^2f6 - \mathcal{Z}p\Gamma\Gamma)}$ |
| k) | $121 + 49x^2 + 154x$ | $\boxed{\mathcal{Z}(\Gamma\Gamma + x\mathcal{L})}$ | l) | $4z^8 - 9u^{12}$ | $\boxed{(9^2n\mathcal{E} + \mathcal{V}z\mathcal{Z}) (9^2n\mathcal{E} - \mathcal{V}z\mathcal{Z})}$ |
| m) | $9v^8 - 36h^{12}$ | $\boxed{(9^2q\mathcal{E} + \mathcal{V}^2n\mathcal{E}) (9^2q\mathcal{E} - \mathcal{V}^2n\mathcal{E})}$ | n) | $-20d + 25d^2 + 4$ | $\boxed{\mathcal{Z}(\mathcal{Z} - p\mathcal{E})}$ |
| o) | $126f + 49f^2 + 81$ | $\boxed{\mathcal{Z}(6 + f\mathcal{L})}$ | p) | $72v^5z^8 + 81z^{16} + 16v^{10}$ | $\boxed{\mathcal{Z}(8^2z6 + \mathcal{E}^2n\mathcal{V})}$ |
| q) | $-24h^5z^4 + 9h^{10} + 16z^8$ | $\boxed{\mathcal{Z}(\mathcal{V}z^2\mathcal{V} - \mathcal{E}^2q\mathcal{E})}$ | r) | $16h^{20} + 81b^{12} - 72h^{10}b^6$ | $\boxed{\mathcal{Z}(9^2q6 - 01^2q\mathcal{V})}$ |
| s) | $121k^6 - 36g^{10}$ | $\boxed{(\mathcal{E}^2b9 - \mathcal{E}^2\gamma\Gamma\Gamma) (\mathcal{E}^2b9 + \mathcal{E}^2\gamma\Gamma\Gamma)}$ | t) | $4 + 49e^2 + 28e$ | $\boxed{\mathcal{Z}(\mathcal{Z} + \mathcal{E}\mathcal{L})}$ |
| u) | $9e^2 + 16 + 24e$ | $\boxed{\mathcal{Z}(\mathcal{V} + \mathcal{E}\mathcal{E})}$ | v) | $-24b^4d^6 + 36d^{12} + 4b^8$ | $\boxed{\mathcal{Z}(9^2p9 - \mathcal{V}^2q\mathcal{Z})}$ |
| w) | $49a^8 - 36y^{20}$ | $\boxed{(01^2h9 + \mathcal{V}^2p\mathcal{L}) (01^2h9 - \mathcal{V}^2p\mathcal{L})}$ | x) | $64 + 4z^2 + 32z$ | $\boxed{\mathcal{Z}(8 + z\mathcal{Z})}$ |
| y) | $144w^{12} + 64b^6 + 192b^3w^6$ | $\boxed{\mathcal{Z}(9^2m\mathcal{Z}\Gamma + \mathcal{E}q\mathcal{E})}$ | z) | $-80b + 16b^2 + 100$ | $\boxed{\mathcal{Z}(0\Gamma - 4\mathcal{V})}$ |

2. Alakítsd a következő kifejezéseket szorzattá!

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|----|------------------------------|--|----|-------------------------------|--|
| a) | $48jb + 18uy - 48jy - 18ub$ | $\boxed{(h9 - q9)(n\mathcal{E} - f\mathcal{E})}$ | b) | $-96hz + 32uz - 28ux + 84hx$ | $\boxed{(x\mathcal{L} - z\mathcal{E})(q\mathcal{Z}\Gamma - n\mathcal{V})}$ |
| c) | $-42ez + 35ey + 30xz - 25xy$ | $\boxed{(z9 - h\mathcal{E})(x\mathcal{E} - \mathcal{E}\mathcal{L})}$ | d) | $9vh - 24vb - 16wb + 6wh$ | $\boxed{(q8 - y\mathcal{E})(m\mathcal{Z} + n\mathcal{E})}$ |
| e) | $-90ga + 30fh + 60fa - 45gh$ | $\boxed{(y\mathcal{E} + v0\Gamma)(b6 - f9)}$ | f) | $-18uh + 20ub - 90wh + 100wb$ | $\boxed{(y6 - q0\Gamma)(m0\Gamma + n\mathcal{Z})}$ |

- g) $-25jc+35wc+49wf-35jf$ $(fL+\varepsilon G)(fG-mL)$ h) $60bv-60bc-60uc+60uv$ $(\varepsilon ZI-aZI)(qG+nG)$
- i) $-20gy+8gd+24xd-60xy$ $(hO1-pV)(xg+\delta Z)$ j) $-16uz+48uy+96ky-32kz$ $(zV-hZ1)(nV+kS)$
- k) $36jf-48jw+24cf-32cw$ $(m8-f9)(f9+\varepsilon V)$ l) $3uj-33cj-7ub+77cb$ $(fG-qL)(n1-\varepsilon I1)$
- m) $40aw+132fh-60fw-88ah$ $(mG-qI1)(v8-fZ1)$ n) $108df-144de+60ze-45zf$ $(f6-\varepsilon Z1)(pZ1-zG)$
- o) $40jk+81xh+36xk+90jh$ $(y6+\gamma V)(f0I+x6)$ p) $121ab+144dh+132db+132ah$ $(qI1+yZ1)(vI1+pZ1)$
- q) $-60aj+60ye+144yj-25ae$ $(fZ1+\varepsilon G)(vG-hZ1)$ r) $-22fv+110fc-20wc+4wv$ $(\varepsilon O1-aZ)(f11-mZ)$
- s) $24dc+24bc+24dh+24bh$ $(\varepsilon G+yG)(p8+q8)$ t) $24xg-40fu+40fg-24xu$ $(nV-\delta V)(f0I+xg)$
- u) $8aj+22wj+8ag+22wg$ $(fZ+\delta Z)(mI1+vV)$ v) $88gb-56fk-56fb+88gk$ $(g8+k8)(fL-\delta I1)$
- w) $-100fa+81eg-90fg+90ea$ $(vO1+\delta 6)(f0I-\varepsilon 6)$ x) $42fk+56fe-96he-72hk$ $(\gamma 9+\varepsilon 8)(\gamma Z1-fL)$
- y) $2ca-18cf-2ua+18uf$ $(v1-f6)(\varepsilon Z-nZ)$ z) $77zh-49zg+132yh-84yg$ $(gZ-yI1)(hZ1+zZ)$

3. Alakítsd a következő kifejezéseket szorzattá!

- a) $h^{36}-34h^9+81$ $(6-6^4V-81y)(6-6^4V+81y)$ b) $f^{36}-108f^9+16$ $(V-6f0I-81f)(V-6f0I+81f)$
- c) $b^{12}+2b^3+9$ $(\varepsilon+\varepsilon^9Z-9q)(\varepsilon+\varepsilon^9Z+9q)$ d) $j^{40}-125j^{10}+4$ $(Z-01f11-02f)(Z-01f11+02f)$
- e) $u^{16}-154u^4+25$ $(G-nZ1-8n)(G-nZ1+8n)$ f) $x^{20}-29x^5+100$ $(0I+\varepsilon xL-01x)(0I+\varepsilon xL+01x)$
- g) $h^{28}-67h^7+81$ $(6-2^4L-41y)(6-2^4L+41y)$ h) $j^{20}-24j^5+16$ $(V-4-01f)(V-4-01f)$
- i) $k^{12}-56k^3+100$ $(0I-\varepsilon^99-9y)(0I-\varepsilon^99+9y)$ j) $g^{16}-120g^4+144$ $(Z1+\varepsilon^9Z1-8g)(Z1+\varepsilon^9Z1+8g)$
- k) f^8-107f^2+49 $(L+\varepsilon f11-\varepsilon f)(L+\varepsilon f11+\varepsilon f)$ l) $x^{44}-101x^{11}+100$ $(0I-\varepsilon x6-zz)(0I-\varepsilon x6+zz)$
- m) $y^{28}-137y^7+64$ $(8-2^4h11-41h)(8-2^4h11+41h)$ n) $e^{28}-77e^7+4$ $(Z+\varepsilon^9-01\varepsilon)(Z+\varepsilon^9+01\varepsilon)$
- o) $d^{16}-40d^4+144$ $(Z1-\varepsilon pV-8p)(Z1-\varepsilon pV+8p)$ p) $a^{44}-126a^{11}+81$ $(6+\varepsilon vZ1-zz)(6+\varepsilon vZ1+zz)$
- q) d^8-114d^2+49 $(L-\varepsilon p0I-\varepsilon p)(L-\varepsilon p0I+\varepsilon p)$ r) $y^{12}-50y^3+49$ $(L+\varepsilon^9h8-9h)(L+\varepsilon^9h8+9h)$