Rozklad výrazu na součin – vzorce

Rozlož výrazy na součin:

1. $r^2 - 2rp + p^2 =$
2. $m^2 + 14mn + 49n^2 =$
3. $4x^2 + 8xy + 4y^2 =$
4. $64c^2 - 208cd + 169d^2 =$
5. $4a^2 - 25b^2 =$
6. $121 - 6r + 9r^2 =$
7. $16 + 24\mathrm{t} + 9\mathrm{t}^2 =$
8. $p^2 + q^2 - 2pq =$
9. $20dg + 4d^2 + 25g^2 =$
10. $-m^2 + 14mk - 39k^2 =$
11. $-16a^2 - 48ab - 36b^2 =$
12. $1 - 144x^2 =$
13. $5u^2 - 20uv + 20u^2 =$
14. $-75a^2 + 60a - 12 =$
15. $7x^2y^2 - 7y^2 =$
16. $4 - 4a^2 - b^2 + a^2b^2 =$

Řešení:

1. $r^2 - 2rp + p^2 = (r+p)^2$

2. $m^2 + 14mn + 49n^2 = (m+7n)^2$

3. $4x^2 + 8xy + 4y^2 = (2x+2y)^2$

4. $64c^2 - 208cd + 169d^2 = (8c-13)^2$

5. $4a^2 - 25b^2 = (2a-5b)(2a+5b)$

6. $121 - 6r + 9r^2 = (11-3r)^2$

7. $16 + 24\mathrm{t} + 9\mathrm{t}^2 = (4+3t)^2$

8. $p^2 + q^2 - 2pq = p^2 - 2pq + q^2 = (p-q)^2$

9. $20dg + 4d^2 + 25g^2 = 4d^2 + 20dg + 25g^2 = (2d+5g)^2$

10. $-m^2 + 14mk - 39k^2 = -1\cdot(m^2 - 14mk + 39k^2) = -(m-7k)^2$

11. $-16a^2 - 48ab - 36b^2 = -1\cdot(16a^2 + 48ab + 36b^2) = -(4a+6b)^2$

12. $1 - 144x^2 = (1-12x)(1+12x)$

13. $5u^2 - 20uv + 20u^2 = 5\cdot(u^2 - 4uv + 4u^2) = 5\cdot(u-2v)^2$

14. $-75a^2 + 60a - 12 = -3\cdot(25a^2 - 20a + 4) = -3\cdot(5a-2)^2$

15. $7x^2y^2 - 7y^2 = 7y^2\cdot(x^2-1) = 7y^2\cdot(x-1)(x+1)$

16. $4 - 4a^2 - b^2 + a^2b^2 = 4\cdot(1-a^2) - b^2\cdot(1-a^2) = (1-a^2)\cdot(4-b^2) =$
$= (1-a)(1+a)(2-b)(2+b)$