

Rozklad výrazu na součin – vytýkání (větší obtížnost)

Rozlož výrazy na součin pomocí vytýkání:

1. $ax - ay + bx - by =$

2. $5az - at + 5bz - bt =$

3. $6x - 10 - 3xy + 5y =$

4. $6t + 2at - 9u - 3au =$

5. $2ax + 4bx + 2ay + 4by =$

6. $8ab - 4ay + 8bx - 4xy =$

7. $21ux - 7uy + 21xv - 7vy =$

8. $3u^2 + 9uv + 3vx + ux =$

9. $3a^2t^2 - 3a^2z + 2bt^2 - 2bz =$

10. $acx + adx + bcx + bdx + acy + ady + bcy + bdy =$

Řešení:

$$1. \quad ax - ay + bx - by = a(x - y) + b(x - y) = (x - y)(a + b)$$

$$2. \quad 5az - at + 5bz - bt = a(5z - t) + b(5z - t) = (5z - t)(a + b)$$

$$3. \quad 6x - 10 - 3xy + 5y = 2(3y - 5) - y(3x - 5) = (3x - 5)(2 - y)$$

$$4. \quad 6t + 2at - 9u - 3au = 2t(3 + a) - 3u(3 + a) = (3 + a)(2t - 3u)$$

$$5. \quad 2ax + 4bx + 2ay + 4by = 2x(a + 2b) + 2y(a + 2b) = (a + 2b)(2x + 2y) = 2(a + 2b)(x + y)$$

$$6. \quad 8ab - 4ay + 8bx - 4xy = 4a(2b - y) + 4x(2b - y) = (2b - y)(4a + 4x) = 4(2b - y)(a + x)$$

$$7. \quad 21ux - 7uy + 21xv - 7vy = 7u(3x - y) + 7v(3x - y) = (3x - y)(7u + 7v) = 7(3x - y)(u + v)$$

$$8. \quad 3u^2 + 9uv + 3vx + ux = 3u(u + 3v) + x(3v + u) = (u + 3v)(3u + x)$$

$$9. \quad 3a^2t^2 - 3a^2z + 2bt^2 - 2bz = 3a^2(t^2 - z) + 2b(t^2 - z) = (t^2 - z)(3a^2 + 2b)$$

$$10. \quad acx + adx + bcx + bdx + acy + ady + bcy + bdy = x(ac + ad + bc + bd) + y(ac + ad + bc + bd) = \\ = (ac + ad + bc + bd)(x + y) = (x + y)[a(c + d) + b(c + d)] = (x + y)(c + d)(a + b)$$