Násobení mnohočlenu jednočlenem

1. Vynásob jednočleny:

a) $3x \cdot 5x^2 = 15x^3$

b) $7y^3 \cdot (-2y^2) = -14y^5$

c) $2z^2 \cdot z = 2z^3$

d) $(-4u) \cdot u^4 = -4u^5$

e) $6t^4 \cdot 2t^2 = 12t^6$

f) $-3r^2 \cdot 2r^2 = -6r^4$

g) $0{,}02s^4 \cdot 0{,}3s^5 = 0{,}006s^9$

h) $-\frac{2}{9}p^4 \cdot \frac{9}{4}p^6 = -\frac{1}{6} \cdot p^{10}$

2. Vynásob jednočleny:

a) $4x^2y \cdot 3y^2z = 12x^2y^3z$

b) $2xy^2 \cdot 3y^2z = 6xy^4z$

c) $-2a^2b^3 \cdot (-ab^2) \cdot (-3ab^3) = -6a^4b^8$

d) $3ab^2 \cdot (-4ab^3) \cdot 5a^3b = -60a^5b^6$

e) $5k^4l^3 \cdot (-4k^5l^4) = -20k^9l^7$

f) $0{,}1m^3o \cdot (-n^2o^3) \cdot (-0{,}2m^3n) = 0{,}02m^6n^3o^4$

g) $\frac{2}{5}t^2u^3 \cdot 1\frac{1}{2}tu^4 \cdot 1\frac{2}{3}t^2 = \frac{2}{5} \cdot \frac{3}{2} \cdot \frac{5}{3} t^5u^7 = t^5u^7$

h) $\frac{2}{3}p^2r^4 \cdot 0{,}25p^3r = \frac{2}{3} \cdot \frac{1}{4} p^5r^5 = \frac{1}{6}p^5r^5$

3. Vynásob:

a) $4 \cdot (3a + 5) = 12a + 20$

c) $3 \cdot (2b - 8) = 6b - 24$

e) $(4c^2 + c) \cdot 2 = 8c^2 + 2c$

g) $(5e^2 - 3e + 5) \cdot 3 = 15e^2 - 9e + 15$

b) $-2 \cdot (7x + 4) = -14x - 8$

d) $-5 \cdot (3y - 1) = -15y + 5$

f) $(-2d^2 + d) \cdot (-3) = 6d^2 - 3d$

h) $(-4z^3 + 3z^2 - 4) \cdot (-4) = 16z^3 - 12z^2 + 16$

4. Vypočítej (dodržuj pořadí početních operací):

a) $3(2a + 3b) + 4(a - 2b) = 6a + 9b + 4a - 8b = 10a + b$

b) $2(3c - 2d) + 3(-5d + 4c) = 6c - 4d - 15d + 12c = 18c - 19d$

c) $7(e - 2g) - 2(3g - e) = 7e - 14g - 6g + 2e = 9e - 20g$

d) $(4h + 2j) \cdot 2 + (7h - 2j) \cdot 3 = 8h + 4j + 21h - 6j = 29h - 2j$

e) $(-5) \cdot (3k - m) - 2(4k + 2m) = -15k + 5m - 8k - 4m = -23k + m$

f) $-6(-7m + 3n) - (3n + 2m) \cdot (-2) = 42m - 18n + 6n + 4m = 46m - 12n$

g) $2p(3p^2 + p) + (p + 4) \cdot 3p^2 = 6p^3 + 2p^2 + 3p^3 + 12p^2 = 9p^3 + 14p^2$

h) $3r^2(r - 7) - (4r^2 + 3) \cdot (-r) = 3r^3 - 21r^2 + 4r^3 + 3r = 7r^3 - 18r^2$

* **5.** Vypočítej (dodržuj pořadí početních operací a umístění závorek):

a) $2a[3a - 2(a - 3)] = 2a[3a - 2a + 6] = 6a^2 - 4a^2 + 12a = 2a^2 + 12a$

b) $3b[2b - 3(2b + 1) - 4(3 - b)] = 3b[2b - 6b - 3 - 12 + 4b] = 3b[-15] = -45b$

c) $4c^2 - 3c\,[2(c - 3) - 5\,(-3 - 2c) + 2] = 4c^2 - 3c[2c - 6 + 15 + 10c + 2] = 4c^2 - 3c[12c + 11] =$

$= 4c^2 - 36c^2 - 33c = -32c^2 - 33c$

d) $3\,(2d^2 + 5) - 4d[5(3 - d) + 3(2d - 3)] - (d + 5)(-4d) = 6d^2 + 15 - 4d[15 - 5d + 6d - 9] +$

$+ 4d^2 + 20d =$ $6d^2 + 15 - 24d - 4d^2 + 4d^2 - 20\,d - 10\,d^2 = 6d^2 - 44d + 15$

e) $-4e[5e - 4(2e - 1] = -4e[5e - 8e + 4] = -4e[-3e + 4] = 12e^2 - 16e$

f) $-2f[3f - 4(1 - 2f)] + f(3 + f) = -2f[3f - 4 + 8f] + 3f + f^2 = -2f[11f - 4] + 3f + f^2 = -21f^2 + 11f$

g) $7g - 4g[5g + 2(3 - 2g)] + 5g^2 = 7g - 4g[5g + 6 - 4g] + 5g^2 = 7g - 4g[9g + 6] = -36g^2 - 17g$

h) $(2h - 3)(-2h) + h[4h - 5(h + 3) + 8] - (3h - 4)(-h) = -4h^2 + 6h + h[4h - 5h - 15 + 8] + 3h^2 - 4h =$

$= -4h^2 + 6h + h[-h - 7] + 3h^2 - 4h = -4h^2 + 6h - h^2 - 7h + 3h^2 - 4h =$

$= -2h^2 - 5h$

38. Vypočítejte:

a) $(7a - 3b + 2) + (4b - 2a - 1) = 7a - 3b + 2 + 4b - 2a - 1 = 5a + b + 1$

b) $(-2k + 8c - 1) + (2 - 5c) + (9k - 3 + 4c) = -2k + 8c - 1 + 2 - 5c + 9k - 3 + 4c = 7k + 7c - 2$

c) $\left(-\frac{2}{5}t + \frac{1}{3}r - 2\right) + \left(5 - \frac{5}{6}r + 0{,}7t\right) = -\frac{2}{5}t + \frac{1}{3}r - 2 + 5 - \frac{5}{6}r + \frac{7}{10}t = \frac{3}{10}t - \frac{1}{2}r + 3$

d) $(5m^2 - 4am + 2a^2) + (3{,}5a^2 + 6am - 2m^2) = 3m^2 + 2am + 5{,}5a^2$

39. Vypočítejte:

a) $(7c - 2a + 5t) - (4a - t + 5c) = -6a + 2c + 6t$

b) $(4{,}3p - 11q + 8{,}1) - (4{,}9q - 1{,}2p + 6{,}4) = 5{,}5p - 15{,}9q + 1{,}7$

NEPOČÍTEJ ~~e) $(5h^2 - 7h + 0{,}5) - (2h - 0{,}1)^2$~~

d) $3(2r^2 - 6r + 0{,}2) - 2(0{,}5r^2 + 2r - 1{,}7) = 5r^2 - 22r + 4$

40. Vypočítejte:

a) $5t - [2t - (3t + 2) - 1] - (8 - 7t) = 13t - 5$

b) $-2x^2 - [5x - (x^2 + 4) + 1] - (x^2 - 3x + 2) + 4x^2 + 8x = 2x^2 + 6x + 1$

c) $8x - [2x - 3(x - 1)^2 + 2] - (x^2 - 3x)2 = x^2 + 6x + 1$

d) $0{,}4m - 2m^2 - [3{,}1 + 5(0{,}5m^2 - m) + 0{,}2m] + 3{,}1 = -4{,}5m^2 + 5{,}2m$

41. Od trojnásobku výrazu $(4c - 2d + 1)$ odečtěte dvojnásobek výrazu $(7c + d - 5)$.

$3(4c - 2d + 1) - 2(7c + d - 5) = -2c - 8d + 13$