NÁSOBENÍ A DĚLENÍ MNOHOČLENU JEDNOČLENEM

M8 – 1

107/1

a) $7xy \cdot 2y = \underline{14xy^2}$

b) $2pq^2 \cdot 3p^2q = \underline{6p^3q^3}$

c) $(-4a^2b) \cdot 0{,}5ab^3 = \underline{-2a^3b^4}$

d) $\frac{3}{5}k^2m \cdot \left(-\frac{10}{9}kmn\right) = \underline{-\frac{2}{3}k^3m^2n}$

e) $(-0{,}1r^3y) \cdot (-0{,}2ry) = \underline{+0{,}02r^4y^2}$

f) $(-7ab^2c) \cdot (0{,}3a^3c^2) = \underline{-2{,}1a^4b^2c^3}$

g) $10mn \cdot (-0{,}72m^2) = \underline{-7{,}2m^3n}$

h) $2\frac{1}{4}m^3v \cdot 1\frac{1}{2}mv^2 = \underline{\frac{27}{8}m^4v^3}$

107/2

a) $5a : 5 = \underline{a}$

b) $6b : 2 = \underline{3b}$

c) $8{,}1z : 0{,}9 = \underline{9z}$

d) $51e : 17 = \underline{3e}$

e) $ab : b = \underline{a}$

f) $5pq : 2 = \underline{\frac{5}{2}pq}$

g) $13ab : ab = \underline{13}$

h) $6p^2q : p = \underline{6pq}$

i) $6xy : x = \underline{6y}$

107/3

a) $8x : 2x = \underline{4}$

b) $7bcd : bd = \underline{7c}$

c) $7{,}8pq^2 : 3q = \underline{2{,}6pq}$

d) $9{,}6xy^2 : 12xy = \underline{0{,}8y}$

e) $2{,}4y^2 : 0{,}3y = \underline{8y}$

f) $16{,}1rs^2t^2 : 2{,}3rst = \underline{7st}$

107/4

a) $\frac{16k^3l}{4k^2} = \underline{4kl}$

b) $\frac{154z^3x^2}{11zx^2} = \underline{14z^2}$

c) $\frac{153p^4q^6r}{17q^3r} = \underline{9p^4q^3}$

d) $\frac{0{,}12u^4v^5}{0{,}02u^2v^3} = \underline{10u^2v^2}$

107/5

a) $(-36x) : (-6x) = \underline{6}$

b) $8{,}4a^4 : (-1{,}4a^2) = \underline{-6a^2}$

c) $(-0{,}72px^2) : (1{,}8p) = \underline{-0{,}4x^2}$

107/6

a) $16x^5 : 2x^3 - 18x : 9 + 3x^5 : 0{,}5x^3 + 6x : 2x = 8x^2 - 2x + 6x^2 + 3 =$

$= \underline{14x^2 - 2x + 3}$ $\qquad 14 \cdot (-2)^2 - 2 \cdot (-2) + 3 = 56 + 4 + 3 = \underline{63}$

b) $15x^3 \cdot 3x^2 - 12x^2 : (-6x) - 40x : (-5) + 3 \cdot 8x = 5x + 2x + 8x + 24x =$

$= \underline{39x}$ $\qquad 39 \cdot (-2) = \underline{-78}$

c) $9x^4 : (-x^2) - 12x^3 : 3x + 20x^2 : (-5x^2) = -9x^2 - 4x^2 - 4 =$

$= \underline{-13x^2 - 4}$ $\qquad -13 \cdot (-2)^2 - 4 = -52 - 4 = \underline{-56}$

M8 - 2

108/7 a) $5(x+y) = \underline{5x+5y}$

b) $13(r-s) = \underline{13r-13s}$

c) $(z-1)\cdot 16 = \underline{16z-16}$

d) $(-10a-36)\cdot 2 = -20a-66$

108/8 a) $x(y+z) = xy+xz$

b) $6a(x+y) = 6ax+6ay$

c) $8x(3x+4) = \underline{24x^2+32x}$

d) $(2z-1)\cdot z = \underline{2z^2-z}$

e) $(12m-3n)\cdot 5m = \underline{60m^2-15mn}$

f) $(2p^2+4q)\cdot 2pq = \underline{4p^3q+8pq^2}$

g) $7k(2m+3) = \underline{14mk+21k}$

h) $9r^2(2s^2-3r) = \underline{r^2s^2-\frac{3}{2}r^3}$

i) $1{,}2u(5+7uv) = \underline{6u+\frac{42}{5}u^2v}$

108/9 a) $6(x-y+z) = \underline{6x-6y+6z}$

b) $2{,}5(4+6a+b) = \underline{10+15a+2{,}5b}$

c) $0{,}1(30u-15v+7x) = \underline{3u-1{,}5v+0{,}7x}$

d) $x(a+x-z) = \underline{ax+x^2-xz}$

e) $2u(9r-5s-3) = \underline{18ur-10us-6u}$

f) $(2a-3b+4c)\cdot 2a = \underline{4a^2-6ab+8ac}$

108/10 a) $5(2a+3)+2(a+4) = 10a+15+2a+8 = \underline{12a+23}$

b) $4(3x-2y)+5(7x+2y) = 12x-8y+35x+10y = \underline{47x+2y}$

c) $3(6p-8q)-4(2p-3q) = 18p-24q-8p+12q = \underline{10p-12q}$

d) $7(2r-s)-3(s-2r) = 14r-7s-3s+6r = \underline{20r-10s}$

108/11 a) $2xy(x-z)-yz(2x+y)-3xz(x-y) =$

$= 2x^2y-2xyz-2xyz-y^2z-3x^2z+3xyz = \underline{2x^2y-y^2z-3x^2z-xyz}$

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

$= a^2+ab-ac-ab+b^2-bc+bc+c^2-ac =$

$= \underline{a^2+b^2+c^2-2ac}$

Mf - 3

108/12 a) $3\cdot[2-(a+b)]-6(a+b) = 6-3(a+b)-6a-6b =$

$= 6-3a-3b-6a-6b = \underline{-9a-9b+6}$

b) $4x-2[3x-2(x+3)-2] = 4x-6x+4(x+3)+4 =$

$= 4x-6x+4x+12+4 = \underline{2x+16}$

c) $[2(u+3v)-6]\cdot(-3)+5(2u-v) = [2u+6v-6]\cdot(-3)+$

$+10u-5v = -6u-18v+18+10u-5v = \underline{4u-23v+18}$

108/13 a) $(-x)(y+z) = \underline{-xy-xz}$

b) $(a-b)(-c) = \underline{-ac+bc}$

c) $(-c-d)\cdot a = \underline{-ac-ad}$

d) $(k+l)\cdot(-m) = \underline{-km-lm}$

e) $r(s-u) = \underline{rs-ru}$

f) $-(-p+q)\cdot r = \underline{pr-qr}$

g) $-e(e+f-2g) = \underline{-e^2-ef+2eg}$

h) $x(y+z)-2y(x+z) =$

$= xy+xz-2xy-2yz =$

$= \underline{-xy+xz-2yz}$

i) $-(p-q)+(q-p) = -p+q+q-p =$

$= \underline{-2p+2q}$

109/14 a) $(24a-21b):3 = \underline{8a-7b}$ b) $(3r+4s):10 = \underline{0,3r+0,4s}$

c) $(60q^2-35):5 = \underline{12q^2-7}$

109/15 a) $\dfrac{98x-140y}{7} = \underline{14x-20y}$ b) $\dfrac{46y^2-69y}{23} = \underline{2y^2-3y}$

c) $\dfrac{0,5e-2f}{0,1} = \underline{5e-20f}$

109/16 a) $(5x^2-7xy):x = \underline{5x-7y}$

b) $(8cd^2+4c):c = \underline{8d^2+4}$

c) $(2a^3-a):a = \underline{2a^2-1}$

d) $(4u^2v+3u^2v):u^2 = 4v+3v = \underline{7v}$

e) $(14m^3+10mn):2m = \underline{7m^2+5n}$

f) $(25p^4q^2-30p^2q^3):5p^2 = \underline{5p^2q^2-6q^3}$

g) $(7s^3t+5s^4):10s^3 = \underline{0,7t+0,5s}$

h) $(5ab^5-0,1b^4):0,1b^4 = \underline{50ab-1}$

109/17 a) $\dfrac{10xz-5xy}{5x} = \underline{2z-y}$ b) $\dfrac{27r^3s^2+6r^4}{3r^3} = \underline{9s^2+2r}$ c) $\dfrac{9ab^2-18a^2b}{9ab} = \underline{b-2a}$

109/18 a) $5(2m-4v)+2(3v-4m)-(15m-20v):5 =$ **MD – 4**

$= 10m-20v+6v-8m-3m+4v = \underline{-m-10v}$

b) $(18xy-6x):6x-5(y+2) = 3y-1-5y-10 = \underline{-2y-11}$

c) $\frac{3a^2+6a-18}{3} + \frac{16a^2-20a+24}{4} = a^2+2a-6+4a^2-5a+6 =$

$= \underline{5a^2-3a}$

d) $\frac{5xy^2-7y}{y} - \frac{9x^2y+8x}{x} = 5xy-7-9xy-8 = \underline{-4xy-15}$

109/19 ZDENĚK .... k korun

MAREK .... $(k+60)$ korun

PETR .... $\frac{k+(k+60)}{2} = (k+30)$ korun

$k+(k+60)+(k+30) = \underline{3k+90}$

1) MAREK UŠETŘIL $(k+60)$ korun.

2) PETR UŠETŘIL $(k+30)$ korun.

3) SPOLEČNĚ UŠETŘILI $(3k+90)$ korun.

109/20 DOPOLEDNE .... 25 . t

SLEVA .... t – 5

ODPOLEDNE .... 12 . (t – 5)

$25 \cdot t + 12 \cdot (t-5) = 25t+12t-60 = \underline{37t-60}$

UTRŽIL ZA DEN $(37t-60)$ KORUN.

110/21 a) $12+6a = \underline{6(2+a)}$

b) $8b-10 = \underline{2(4b-5)}$

c) $2c+0{,}5 = \underline{0{,}5(4c+1)}$

d) $6x+5x^2 = \underline{x(6+5x)}$

e) $3y^2-xy^2 = \underline{y^2(3-x)}$

f) $2x^2y^2-xy = \underline{xy(2xy-1)}$

MF – 5

110/22

a) $4x+4v = \underline{4(x+v)}$

b) $8p+4q = \underline{4(2p+q)}$

c) $6u-3v = \underline{3(2u-v)}$

d) $ab+ac = \underline{a(b+c)}$

e) $x^2-xy = \underline{x(x-y)}$

f) $de^2-de = \underline{de(e-1)}$

g) $12xy+5yz = \underline{y(12x+5z)}$

h) $27cd-18ce = \underline{9c(3d-2e)}$

i) $p^3q-pq^2 = \underline{pq(p^2-q)}$

110/23

a) $10m^2n-15mn^2 = \underline{5mn(2m-3n)}$

b) $12x^3y^2+9x^2y^3 = \underline{3x^2y^2(4x+3y)}$

c) $r^4-3r^3+6r^2-5r = \underline{r(r^3-3r^2+6r-5)}$

d) $5a^4b^3-15a^3b^2+25a^2b^4 = \underline{5a^2b^2(a^2b-3a+5b^2)}$

e) $2x^3-x^2y-xy^2 = \underline{x(2x^2-xy-y^2)}$

f) $0{,}2p^3q^3-0{,}6p^4q+0{,}4p^2q^4 = \underline{0{,}2p^2q(pq^2-3p^2+2q^3)}$

110/24

a) $5(a+4)-b(a+4) = \underline{(a+4)(5-b)}$

b) $k(m-3)+4(m-3) = \underline{(m-3)(k+4)}$

c) $8(x+7)-x-7 = 8(x+7)-(x+7) = (x+7)(8-1) = \underline{(x+7)\cdot 7}$

d) $3(4p-q)-4p+q = 3(4p-q)-(4p-q) = (4p-q)(3-1) = \underline{(4p-q)\cdot 2}$

e) $(3x-y)-2z(3x-y) = \underline{(3x-y)\cdot(1-2z)}$

f) $-4u-7v+3(4u+7v) = -(4u+7v)+3(4u+7v) =$

$= (4u+7v)(-1+3) = \underline{(4u+7v)\cdot 2}$

STEJNĚ JAKO MINULE – KDO NAJDE CHYBU, POKUD ZDE NĚJAKÁ JE, BUDE ODMĚNĚN.

KK