Grundlagen Z (algebra) Z A — lösung

(1) a) $(10x^2+5y)(2x-6y^2) =$
$20x^3 - 60x^2y^2 + 10xy - 30y^3$

b) $(16b^2-25a^2)(5a-4b) =$
$80ab^2 - 125a^3 - 64b^3 + 100a^2b = -125a^3 + 100a^2b + 80ab^2 - 64b^3$

(2) a) $dc^2f^2 \cdot 5d^3e^2f^2 \cdot 3a^6e^4f = 15d^{10}e^7f^5$

b) $36a^5b^2c^3 : (9a^2bc^2) = 4a^3bc$ B

c) $\frac{30a^9bc^4}{6a^5b^2c^2} = 5a^4b^{-1}c^2$

(3) a. B a) $-4(2b-5)^2$ b) $-3(3a+b)(3a-2b)$

(4) a) $p^2-7p-120 = (p+8)(p-15)$

b) $x^2+9x+20 = (x+4)(x+5)$

c) $x^2+3ax+2a^2 = (x+a)(x+2a)$

d) $-16x^2-26x-3 = (-1)(16x^2+26x+3) = (-1)(8x+9)(2x+1)$

(5) $(24a^3+4a^2b+6ab^2+5b^3) : (2a+b) = 12a^2-4ab+5b^2$

$-24a^3+12a^2b$

$-8a^2b+6ab^2$

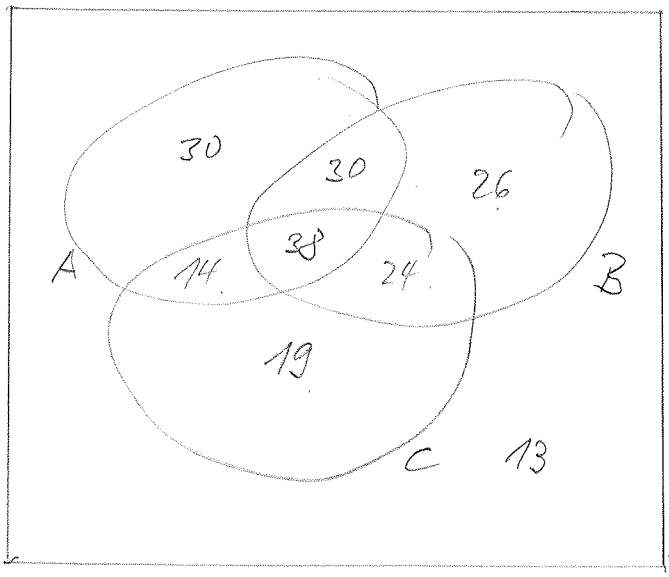
$+8a^2b-4ab^2$

$10ab^2+5b^3$

$10ab^2+5b^3$

0

(6) a)



b) Total $|S| = 194$

(7) a) 3 b) 1

Grundlagen 2 (algebra) 7 B Lösung

① a) $-400 + 160b - 16b^2 = (-1)(16b^2 - 160b + 400)$

$= -(4b - 20)^2$

$= (-16)(b^2 - 10b + 25) = -16(b-5)^2$

b) $-18a^2 + 8b^2 = (-2)(9a^2 - 4b^2) = (-2)(3a + 2b)(3a - 2b)$

$= 2(2b + 3a)(2b - 3a)$

---

② a) $15a^7e^{7/5}$ b) $4a^3bc$ c) $5a^4b^{-1}c^2$

---

③ a) $(10y^2 + 5z)(2y - 6z^2) = 20y^3 - 60y^2z^2 + 10yz - 30z^3$

b) $(-4a + 5b)(5b - 4a)(-4a - 5b) = (16a^2 - 25b^2)(5b - 4a) = 80ab - 64a^3 - 125b^3 + 100ab^2$

$= -64a^3 + 80a^2b + 100ab^2 - 125b^3$

---

⑤ a) $(a+4)(a+5)$ b) $(x+8)(x-7)$ c) $(-1)(8b+9)(2b+1)$

---

④ $(6c^4 + 0c^3 - 3c^2 + 0c - 3) : (c - 1) = \underline{\underline{6c^3 + 6c^2 + 3c + 3}}$

$-6c^4 \pm 6c^3$

$6c^3$

$-6c^3 \pm 6c^2$

$+3c^2$

$-3c^2 \pm 3c$

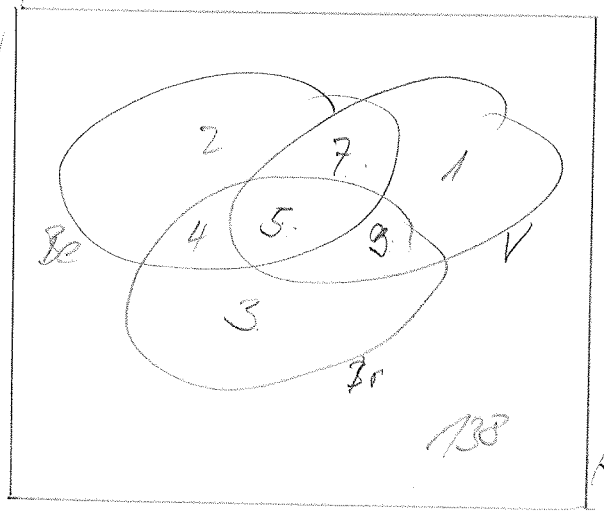
$3c - 3$

$3c - 3$

0

---

⑥ a)



b) 138

S. 169 $165 - 31 = 138$

⑦ a) 2

b) 4