

Esercizi di riepilogo

Esercizi proposti

Scomporre in fattori i seguenti polinomi⁽¹⁾.

237. $8x^5 - 50x^3y^2$; $a^2b^3 + 2ab + b$. $[2x^3(2x + 5y)(2x - 5y); b(a + 1)^2]$
238. $a^2x - 3a^2y - bx + 3by$; $27x^4 - 64xy^6$. $[(a^2 - b)(x - 3y); x(3x - 4y^2)(9x^2 + 12xy^2 + 16y^4)]$
239. $2x(x + y - 1)^2 + 2y(x + y - 1) + (x + y - 1)^3$. $[(x + y - 1)(3x^2 + y^2 + 4xy - 4x + 1)]$
240. $(a + b + c)^2(a + b + 1) + (a + b + c)^2(a + b - 1)$. $[2(a + b)(a + b + c)^2]$
241. $\frac{1}{3}x^2y\left(\frac{2}{3}x - \frac{1}{4}y\right) - 2xy^2\left(\frac{2}{3}x - \frac{1}{4}y\right) - x\left(\frac{1}{4}y - \frac{2}{3}x\right)$. $\left[x\left(\frac{2}{3}x - \frac{1}{4}y\right)\left(\frac{1}{3}xy - 2y^2 + 1\right)\right]$
242. $\frac{1}{25}x^2y^4 + \frac{49}{4}x^2 + 9x^4 + \frac{7}{5}x^2y^2 - \frac{6}{5}x^3y^2 - 21x^3$. $\left[\left(-\frac{1}{5}xy^2 - \frac{7}{2}x + 3x^2\right)^2\right]$
243. $(x + 1)^2 + 2(x + 1)(2x + 3) + (2x + 3)^2$. $[(3x + 4)^2]$
244. $y^2 + 8y - 33$; $(3x - 4)^2 - (5x + 6)^2$. $[(y - 3)(y + 11); -4(4x + 1)(x + 5)]$
245. $x^3 + 125y^3 - x^2 - 10xy - 25y^2$. $[(x + 5y)(x^2 - 5xy + 25y^2 - x - 5y)]$
246. $x^8 - y^8$; $1 - (3x - 5)^3$. $[(x + y)(x - y)(x^2 + y^2)(x^4 + y^4); 9(2 - x)(3x^2 - 9x + 7)]$
247. $9x^4 + 4y^2 + 25x^2y^2 - 12x^2y + 30x^3y - 20xy^2$. $[(3x^2 - 2y + 5xy)^2]$
248. $2x^2 - 7x + 3$; $y^3 - 7y - 6$. $[(2x - 1)(x - 3); (y - 3)(y + 2)(y + 1)]$
249. $-8x^{6n} + 12x^{4n}b^5 - 6x^{2n}b^{10} + b^{15}$. $[-(2x^{2n} - b^5)^3]$
250. $a^6 - a$; $16 - a^2 - b^2 + 2ab$. $[a(a - 1)(a^4 + a^3 + a^2 + a + 1); (4 + a - b)(4 - a + b)]$
251. $(x^3 - 27)(x + 3) + (x^3 + 27)(x - 3)$. $[2(x - 3)(x + 3)(x^2 + 9)]$
252. $x^4 - 9x^3 + 29x^2 - 39x + 18$. $[(x - 1)(x - 2)(x - 3)^2]$
253. $2a^2 + ab - 15b^2$. $[(a + 3b)(2a - 5b)]$
254. $b^2(2a - b)^2 + 3b(b - 2a)^3$. $[2b(2b - 3a)(2a - b)^2]$
255. $(a - 2b)^2 + 2(a - 2b)(3a + 5b) + (3a + 5b)^2$. $[(4a + 3b)^2]$
256. $(a + b)(a - b)^2 + 2(a^2 + 3b^2)(b - a) + a^2(a - b)$. $[-7b^2(a - b)]$
257. $a^8 - b^8 + a^4 + b^4$; $a^4 - 3a^3 + 2a - 6$. $[(a^4 + b^4)(a^4 - b^4 + 1); (a - 3)(a^3 + 2)]$
258. $x^2 + 6x + 9 - 4y^2$; $a^{4n} + 2a^{3n} + a^{2n}$. $[(x + 3 - 2y)(x + 3 + 2y); a^{2n}(a^n + 1)^2]$

⁽¹⁾ Gli esercizi proposti come riepilogo non sono disposti secondo un ordine preciso.

Gli esercizi 239 ÷ 285 sono proposti dal prof. G. Sgroi, L.S. Marconi, Conegliano (TV).

- 259.** $a^3 - 1 - a^2 + a;$ $a^2 - 4a + 4 - ax + 2x.$ $[(a-1)(a^2+1); (a-2)(a-2-x)]$
260. $x^2(y^2-1)^2 - x^2;$ $x^3 - 2x^2 - x^2y + 2xy.$ $[x^2y^2(y^2-2); x(x-y)(x-2)]$
261. $4b^2 - a^2 - 2a - 1.$ $[(2b-a-1)(2b+a+1)]$
262. $(x-3)^2 + (x^2-3x)^2 + (2x-6)^2.$ $[(x-3)^2(x^2+5)]$
263. $x^4 - x^2y^2 + 2x^3 - 2xy^2 + x^2 - y^2.$ $[(x-y)(x+y)(x+1)^2]$
264. $x^2 - (3a-4b)x - 12ab.$ $[(x-3a)(x+4b)]$
265. $(3x-2y)^2 - (5x-2y)(3x-2y) - 2(3x-2y).$ $[2(x+1)(3x-2y)]$
266. $4a^2 - 8ab + 4b^2 - 81;$ $20ay^2 - \frac{4}{5}az^2.$ $\left[(2a-2b-9)(2a-2b+9); \frac{4}{5}a(5y-z)(5y+z) \right]$
267. $x^3 - y^3 - 9x + 9y + x^2y - xy.$ $[(x-y)(x+y-3)(x+y+3)]$
268. $2b + (a+2)^2 - b^2 - 1;$ $x^6 - y^6 + x^4y^2 - x^2y^4.$ $[(a-b+3)(a+b+1); (x-y)(x+y)(x^2+y^2)^2]$
269. $\frac{14}{5}bx^2 + \frac{28}{5}bxy + \frac{14}{5}by^2.$ $\left[\frac{14}{5}b(x+y)^2 \right]$
270. $x^2 - x + 2y - 3xy + 2y^2;$ $x^2 - 2ax + a^2 - b^2.$ $[(x-2y)(x-y-1); (x-a-b)(x-a+b)]$
271. $x^2 - (a-b+1)x + a-b;$ $a^2 - 2ab + b^2 - 4.$ $[(x-1)(x-a+b); (a-b+2)(a-b-2)]$
272. $a^2 - b^2 - 4a + 4b;$ $x^3 - 2x^2y - 4xy^2 + 8y^3.$ $[(a-b)(a+b-4); (x+2y)(x-2y)^2]$
273. $3(a+b)^3 - 9(a^2-b^2)(a+b) + 6(a^2-b^2)(a-b).$ $[6b(a+b)(3b-a)]$
274. $x^3 - y^3 - x^2 - xy - y^2;$ $x^3 - x^2y + x(x-y)^2 - 2(x-y)^3.$ $[(x^2+xy+y^2)(x-y-1); y(x-y)(3x-2y)]$
275. $x^3 - 4x^2y + 3xy^2 - 2x^2(x-3y) + x(x^2-9y^2).$ $[2xy(x-3y)]$
276. $2x^4 + x^3y - 23x^2y^2 - 4xy^3 + 60y^4.$ $[(x-2y)(x+2y)(x+3y)(2x-5y)]$
277. $27x^6 - 9x^8 + x^{10} - \frac{1}{27}x^{12}.$ $\left[x^6 \left(3 - \frac{1}{3}x^2 \right)^3 \right]$
278. $(x-1)(x^2-3x-4) - (x+1)(x^2-6x+8).$ $[(x+1)(x-4)]$
279. $(x-2)^2 - 2(x^2-4) + (x-2)^2;$ $(x^2+y^2)^2 - 4x^2y^2.$ $[16; (x+y)^2(x-y)^2]$
280. $a^3 + b^3 - a^2 + b^2 + (a+b)^2.$ $(a+b)(a^2-ab+b^2+2b)$
281. $2a^5 - a^4 - 26a^3 + 13a^2 + 72a - 36.$ $[(a-2)(a+2)(a-3)(2a-1)]$
282. $x^2 + 2xy + y^2 - a^2 + 2ab - b^2.$ $[(x+y+a-b)(x+y-a+b)]$
283. $2x(x^6+y^6) - 4x^3y^2(x^2+y^2) + 6xy^2(x^4-y^4).$ $[2x(x^2+y^2)(x^4-y^4)]$
284. $9a^2 - 12b^2;$ $-25x^4y^3 + y^3.$ $[3(a-2b)(a+2b); y^3(1-5x^2)(1+5x^2)]$
285. $3a^3b - 6a^2b + 6ab;$ $zt + 3z - 2t - 6.$ $[3ab(a^2-2a+2); (z-2)(t+3)]$
286. $16z^2 - 16xz + 4x^2;$ $(2a+b)^2 - (5-b)^2.$ $[4(2z-x)^2; (2a+5)(2a+2b-5)]$
287. $-9z^8y^2 + z^2y^{10};$ $8-6z^3 + \frac{3}{2}z^6 - \frac{1}{8}z^9.$ $\left[z^2y^2(y^4+3z^3)(y^4-3z^3); \left(2 - \frac{1}{2}z^3 \right)^3 \right]$

- 288.** $27x^5 - \frac{1}{8}x^2y^3$. $\left[x^2 \left(3x - \frac{1}{2}y \right) \left(9x^2 + \frac{3}{2}xy + \frac{1}{4}y^2 \right) \right]$
- 289.** $3a^3x - 24a^2x + 36ax$; $2t^6 + 7t^3 + 3$. $[3ax(a-6)(a-2); (t^3+3)(2t^3+1)]$
- 290.** $6x^2z^4 + 11xz^4 - 10z^4$; $4a^2 + b^2 + 4ab - 2a - b$. $[(z^4(2x+5)(3x-2); (2a+b)(2a+b-1))]$
- 291.** $(x-3)^3 + x^3 - 27$; $x^2 + 9z^2 - 6xz - y^2$. $[(x-3)(2x^2-3x+18); (x-3z-y)(x-3z+y)]$
- 292.** $x^8y^3 + 64x^2y^7 + 16x^5y^5$; $2t^3 - 3t^2 - 7t + 8$. $[x^2y^3(x^3+8y^2)^2; (t-1)(2t^2-t-8)]$
- 293.** $6y^4 + y^3 - 25y^2 - 4y + 4$. $[(y+2)(y-2)(2y+1)(3y-1)]$
- 294.** $3z^3 + 9z^3y + 9z^3y^2 + 3z^3y^3$. $[3z^3(1+y)^3]$
- 295.** $9ab - 3a - 3ab^2 + b^2 - 3b + 1$. $[(1-3a)(b^2-3b+1)]$
- 296.** $6x^3 - 6x - 30x^2 + 30$. $[6(x+1)(x-1)(x-5)]$
- 297.** $2x^2z^4 + 5x^2z^3 - 5x^2z^2 - 5x^2z + 3x^2$. $[x^2(z-1)(z+1)(z+3)(2z-1)]$
- 298.** $4(3x+2)^2 - 9(x-2)^2$; $7by^5 - 7b^5y$. $[(9x-2)(3x+10); 7by(y-b)(y+b)(y^2+b^2)]$
- 299.** $a^4b^4 - 7a^2b^2 + 6$. $[(ab-1)(ab+1)(a^2b^2-6)]$
- 300.** $4x^4 + a^2x^2 + \frac{9}{4}a^2 - 3a^2x + 6ax^2 - 4ax^3$. $\left[\left(2x^2 - ax + \frac{3}{2}a \right)^2 \right]$
- 301.** $(x-y+z)^2 - (x+y-z)^2$. $[4x(z-y)]$
- 302.** $t^2 - 4z^2 + 24xz - 36x^2$. $[(t-2z+6x)(t+2z-6x)]$
- 303.** $32x^4 - 4xy^3$; $54x^5 - 54x^4 + 18x^3 - 2x^2$. $[4x(2x-y)(4x^2+2xy+y^2); 2x^2(3x-1)^3]$
- 304.** $4y^2 - 4yz - 3(y-z)^2 + 2y - 2z$. $[(y-z)(y+3z+2)]$
- 305.** $t^6 - 3t^4 + 3t^2 - 1$; $6x^2 - 5x - 6$. $[(t-1)^3(t+1)^3; (2x-3)(3x+2)]$
- 306.** $(a+3)^3 - 6(a+3)^2 + 12(a+3) - 8$. $[(a-1)^3]$
- 307.** $\frac{1}{8}x^2z^3 - 8x^2y^3$. $\left[x^2 \left(\frac{1}{2}z - 2y \right) \left(\frac{1}{4}z^2 + zy + 4y \right) \right]$
- 308.** $12x^2y^3 - 12x^2y^2 + 3y^3 - 3y^2$. $[3y^2(y-1)(4x^2+1)]$
- 309.** $y^3 + 10y^2 + 33y + 36$. $[(y+4)(y+3)^2]$
- 310.** $xy^3(z^2+t^2) + x^2y^2(z^2+t^2) + x^3y(z^2+t^2)$. $[xy(z^2+t^2)(y^2+xy+x^2)]$
- 311.** $(2z-1)^3 + 4z^2 - 4z + 1$. $[2z(2z-1)^2]$
- 312.** $192x^8y^7 - 3x^2y$. $[3x^2y(2xy+1)(2xy-1)(4x^2y^2-2xy+1)(4x^2y^2+2xy+1)]$
- 313.** $64y^6 - 4y^2$; $9a^5 - 144ab^4$. $[4y^2(4y^2+1)(2y+1)(2y-1); 9a(a^2+4b^2)(a+2b)(a-2b)]$
- 314.** $a^7 - 125a$; $4x^2 - \frac{9}{16}y^2$. $\left[a(a^2-5)(a^4+5a^2+25); \left(2x + \frac{3}{4}y \right) \left(2x - \frac{3}{4}y \right) \right]$
- 315.** $a^3 + 3a^2b + 3ab^2 + b^3 - 8$. $[(a+b-2)(a^2+2ab+b^2+2a+2b+4)]$
- 316.** $a^3 + 3a^2 + 3a + 1 + b^3$. $[(a+b+1)(a^2-ab+b^2+2a-b+1)]$
- 317.** $4a^4 + b^4$; $a^4 + 4b^4$. $[(2a^2+2ab+b^2)(2a^2-2ab+b^2); (a^2+2ab+2b^2)(a^2-2ab+2b^2)]$

- 318.** $9a^2 - 6a - 3$; $x^2 - 24x + 143$. $[3(a-1)(3a+1); (x-11)(x-13)]$
- 319.** $x^2 - 10x + 16$; $a^6 + b^6$. $[(x-2)(x-8); (a^2+b^2)(a^4-a^2b^2+b^4)]$
- 320.** $a^6 - 64b^6$. $[(a+2b)(a-2b)(a^2+2ab+4b^2)(a^2-2ab+4b^2)]$
- 321.** $(ab-1)^2 - (a-b)^2$. $[(a+1)(a-1)(b+1)(b-1)]$
- 322.** $4y^2z^2 - (x^2 - y^2 - z^2)^2$. $[(x+y-z)(x-y+z)(x+y+z)(y+z-x)]$
- 323.** $(x^2 + y^2 - 5)^2 - 4(xy+2)^2$. $[(x-y+3)(x-y-3)(x+y+1)(x+y-1)]$
- 324.** $a^2 + 10a + 21$; $12a^2 - 12a + 3$. $[(a+3)(a+7); 3(2a-1)^2]$
- 325.** $a^2 + ab - 2b^2$; $3x^5 - 15x^3 + 12x$. $[(a-b)(a+2b); 3x(x+1)(x-1)(x+2)(x-2)]$
- 326.** $3x^2 - 2x + \frac{1}{3}$; $4x^2 - 28x + 48$. $\left[\frac{1}{3}(3x-1)^2; 4(x-3)(x-4)\right]$
- 327.** $a^6 - 2a^4 + 1$; $ab^2 - ab - 6a$. $[(a+1)(a-1)(a^4-a^2-1); a(b+2)(b-3)]$
- 328.** $\frac{2}{3}a^3 - 4a^2 + 6a$; $a^4 + a^2 + 1$. $\left[\frac{2}{3}a(a-3)^2; (a^2+a+1)(a^2-a+1)\right]$
- 329.** $ab^4 + 2ab^2 + a$; $x^2 + mx + nx + mn$. $[a(b^2+1)^2; (x+m)(x+n)]$
- 330.** $a^2 - ab - b - 1$; $a^2 - 2ab - 2bc + ac$. $[(a+1)(a-b-1); (a-2b)(a+c)]$
- 331.** $a^4 + 3a^3 + 3a^2 + a$; $a^2 - b^2 + a - b$. $[a(a+1)^3; (a-b)(a+b+1)]$
- 332.** $am - an + 2bm - 2bn$; $a^3 - a^2 - b^3 + b^2$. $[(m-n)(a+2b); (a-b)(a^2+ab+b^2-a-b)]$
- 333.** $x^3 + y^3 + 2x^2y + 2xy^2$; $x^2 - x - 16y^2 - 4y$. $[(x+y)(x^2+xy+y^2); (x+4y)(x-4y-1)]$
- 334.** $a^5 + a^4 - a - 1$; $5x^3 + x^2 - 20x - 4$. $[(a-1)(a+1)^2(a^2+1); (x-2)(x+2)(5x+1)]$
- 335.** $a^3 + 3a^2 + 3a - 26$; $a^3 - 6a^2 + 12a - 8$. $[(a-2)(a^2+5a+13); (a-2)^3]$
- 336.** $ab^2 + 2ab - ac^2 + a$; $(7a-5b)^2 - (5a-7b)^2$. $[a(b+c+1)(b-c+1); 24(a-b)(a+b)]$
- 337.** $x^3 + 3x^2y + 3xy^2 - 7y^3$; $ab - a^2c + a^3d$. $[(x-y)(x^2+4xy+7y^2); a(b-ac+a^2d)]$
- 338.** $3a^4 - 6a^3 + 3a - 6$; $a(m+n) - 2b(m+n)$. $[3(a-2)(a+1)(a^2-a+1); (m+n)(a-2b)]$
- 339.** $10ab - 40a - 2b + 8$; $m^2 - (a+b)mn + abn^2$. $[2(b-4)(5a-1); (m-an)(m-bn)]$
- 340.** $x^3 - x^2y - xy - x$; $x^5 - 2x^2 - x + 2$. $[x(x+1)(x-y-1); (x+1)(x-1)^2(x^2+x+2)]$
- 341.** $a^4 + a^2 + 1$. *[Porre: $a^4 + a^2 + 1 = a^4 + 2a^2 + 1 - a^2$. Si ha: $(a^2 - a + 1)(a^2 + a + 1)$]*
- 342.** $a^8 + a^4 + 1$; $a^4 + 4b^4$. $[(a^2-a+1)(a^2+a+1)(a^4-a^2+1); (a^2-2ab+2b^2)(a^2+2ab+2b^2)]$
- 343.** $x^4 + 4y^4 - 3x^2 - 6y^2 - 6xy$. *[Sommare e sottrarre $4x^2y^2$. Si ha: $(x^2+2xy+2y^2)(x^2-2xy+2y^2-3)$]*
- 344.** $(3x-2y)^2 + (3x-2y) - 12$. *[Porre: $t = 3x - 2y$. Si ha: $(3x-2y+4)(3x-2y-3)$]*
- 345.** $(a^2-4)^2 - a^2 - 8a - 16$; $(a^2-25)^2 - 9(a+5)^2$. $[a(a+1)(a^2-a-8); (a-8)(a-2)(a+5)]$
- 346.** $9x^4 + 5x^2 + 1$. *[Porre: $9x^4 + 5x^2 + 1 = 9x^4 + 6x^2 + 1 - x^2 = \dots$. Si ha: $(3x^2-x+1)(3x^2+x+1)$]*

- 347.** $25x^4 + x^2 + 1$; $16a^4 - 9a^2b^2 + b^4$.
 $[(5x^2 - 3x + 1)(5x^2 + 3x + 1); (4a^2 - b^2 - ab)(4a^2 - b^2 + ab)]$
- 348.** $x^2 + ax + 2 + 3x + a$; $27x^5 - x^2(3x - 5y)^3$. $[(x + 1)(x + a + 2); 5x^2y(27x^2 - 45xy + 25y^2)]$
- 349.** $y^2 - 15x + 3xy - 20 - y$. $[(y - 5)(3x + y + 4)]$
- 350.** $a^3 - 9b^2 + 6ab - a^2 - 9ab^2$. $[(a - 3b)(a^2 + 3ab - a + 3b)]$
- 351.** $(a^4 + a^2)^2 + 4(a^4 + a^2) - 12$. $[(a^4 + a^2 + 6)(a^4 + a^2 - 2)]$
- 352.** $(ay - a)^2 - 4y^2 + 8y - 4$. $[(y - 1)^2(a - 2)(a + 2)]$
- 353.** $3(a^3 + 8)^3 - 2(a^3 + 8)^2 - a^3 - 8$. [Porre: $t = a^3 + 8$. Si ha: $(a + 2)(a^2 - 2a + 4)(a^3 + 7)(3a^3 + 25)$]
- 354.** $2(3a - 2b)^3 + 5(3a - 2b)^2 + 3a - 2b - 2$. $[(3a - 2b + 2)(3a - 2b + 1)(6a - 4b - 1)]$
- 355.** $(a^3b^2 + a^2b^3)^3 - a^3 - 3a^2b - 3ab^2 - b^3$. $[(a + b)^3(ab - 1)(ab + 1)(a^2b^2 - ab + 1)(a^2b^2 + ab + 1)]$
- 356.** $3x^5 + 12x^4 - x^2 - 6x - 8$. $[(x - 1)(x + 4)(3x^3 + 3x^2 + 3x + 2)]$
- 357.** $a^6 - a^4 - 9a^2 + 9$; $a^4 - b^4 + 3a^2 + 3b^2$.
 $[(a + 1)(a - 1)(a^2 + 3)(a^2 - 3); (a^2 + b^2)(a^2 - b^2 + 3)]$
- 358.** $x^6 + x^5 - 16x^2 - 16x$; $3a^6 - 18a^5 + 36a^4 - 24a^3$.
 $[x(x + 1)(x + 2)(x - 2)(x^2 + 4); 3a^3(a - 2)^3]$
- 359.** $80a^3b^3 - 20abc^2 + 20abc - 5ab$. $[5ab(4ab + 2c - 1)(4ab - 2c + 1)]$
- 360.** $2a^6 + 2a^4b^2 - 2a^2b^4 - 2b^6$. $[2(a^2 + b^2)^2(a + b)(a - b)]$
- 361.** $8x^3 - y^3 - 3y^2z - 3yz^2 - z^3$. $[(2x - y - z)(4x^2 + 2xy + 2xz + y^2 + 2yz + z^2)]$
- 362.** $a^4 - 3a^3 - 7a^2 + 27a - 18$. $[(a - 1)(a - 3)(a - 2)(a + 3)]$
- 363.** $x^3(y - z) - y^3(x - z) + z^3(x - y)$. $[(x - y)(x - z)(y - z)(x + y + z)]$
- 364.** $30a^2bc^5 + 10ab^2c^5 - 480a^2bc - 160ab^2c$. $[10abc(3a + b)(c + 2)(c - 2)(c^2 + 4)]$
- 365.** $\frac{3}{4}a^6 - 3a^2$; $(a - 2b)^3 - a^3$. $\left[3a^2\left(\frac{1}{2}a^2 + 1\right)\left(\frac{1}{2}a^2 - 1\right); -2b(3a^2 - 6ab + 4b^2)\right]$
- 366.** $(3a - b)^3 - 1$. $[(3a - b - 1)(9a^2 - 6ab + b^2 + 3a - b + 1)]$
- 367.** $(2a - 3b)^3 + 1$. $[(2a - 3b + 1)(4a^2 - 12ab + 9b^2 - 2a + 3b + 1)]$
- 368.** $(2a + 3)^2 - (2a - 3)^2$; $x^4 + y^4 - 7x^2y^2$. $[24a; (x^2 + 3xy + y^2)(x^2 - 3xy + y^2)]$
- 369.** $a^2 + 3ab + 2b^2$; $9x^2 - 3xy + \frac{1}{4}y^2$. $\left[(a + b)(a + 2b); \left(3x - \frac{1}{2}y\right)^2\right]$
- 370.** $x^6 + x^5 + x^4 + 3x^3 + 2x^2$; $a^3 - (a - 1)^2 - 1$. $[x^2(x + 1)^2(x^2 - x + 2); (a - 1)(a^2 + 2)]$
- 371.** $a^3 - b^3 + a^2 + ab + b^2$. $[(a^2 + ab + b^2)(a - b + 1)]$
- 372.** $a^3 - a^2b - ab - b - 1$. $[(a^2 + a + 1)(a - b - 1)]$
- 373.** $a^4 - 18a^2 + 81 + a^2b - 9b$. $[(a + 3)(a - 3)(a^2 + b - 9)]$

374. $a^2 - 3a + 2 + b(a - 2); \quad 4a^2 + 4a + 9b^2 + 1 - 12ab - 6b. \quad [(a - 2)(a + b - 1); (2a - 3b + 1)^2]$
375. $a^4 + 5a^3 - 7a^2 - 29a + 30. \quad [(a - 1)(a - 2)(a + 3)(a + 5)]$
376. $a^4 - 2a^3 - 13a^2 + 38a - 24. \quad [(a - 1)(a - 2)(a - 3)(a + 4)]$
377. $a(a + 2b)^2 - 2a(a^2 - 4b^2) + 5a^2(a + 2b). \quad [2a(a + 2b)(2a + 3b)]$
378. $a^3 - ab^2 - a^2b + b^3 + 4a^2 - 4b^2. \quad [(a + b)(a - b)(a - b + 4)]$
379. $a^3 - am^2 + 2a^2b + ab^2 - 2amn - an^2. \quad [a(a + b + m + n)(a + b - m - n)]$
380. $(xy + ab)^2 + (ay - bx)^2. \quad [(a^2 + x^2)(b^2 + y^2)]$
381. $a(b^2 + c^2 - a^2) + b(a^2 + c^2 - b^2). \quad [(a + b)(a - b + c)(b + c - a)]$
382. $c^2(a^2 - 4b^2) + 2c(a^3 + 2b^3) + a^4 - b^4. \quad [(a^2 + ac + 2bc - b^2)(a^2 + ac - 2bc + b^2)]$
383. $4x^2 + 9y^2 + z^2 - 12xy + 4xz - 6yz. \quad [(2x - 3y + z)^2]$
384. $a^3 - b^3 + a(a^2 - b^2) + b^2(a - b). \quad [2(a - b)(a^2 + ab + b^2)]$
385. $(3a - 2b)^2 - 2c(3a - 2b) + c^2. \quad [(3a - 2b - c)^2]$
386. $3a^5 + a^4 - 15a^3 - 5a^2 + 12a + 4. \quad [(a - 2)(a - 1)(a + 1)(a + 2)(3a + 1)]$
387. $a^5 - 2a^4 + 2a^3 - 2a^2 + 2a - 1. \quad [(a - 1)(a^4 - a^3 + a^2 - a + 1)]$
388. $4x^2 + y^2 + 9z^2 - 4xy - 12xz + 6yz. \quad [(2x - y - 3z)^2]$
389. $2a^5 - 17a^4 + 52a^3 - 70a^2 + 42a - 9. \quad [(a - 3)^2(a - 1)^2(2a - 1)]$
390. $a^5 + 3a^4 - a^3 - 11a^2 - 12a - 4. \quad [(a - 2)(a + 1)^3(a + 2)]$
391. $a^2b + a^2c + ab^2 + ac^2 + 2abc + b^2c + bc^2. \quad [(a + b)(a + c)(b + c)]$
392. $(a - b)^3 + 3(a - b)^2 + 3(a - b) + 1. \quad [(a - b + 1)^3]$
393. $(a + b)^5 - a^5 - b^5; \quad (x + y)^7 - x^7 - y^7. \quad [5ab(a + b)(a^2 + ab + b^2); 7xy(x + y)(x^2 + xy + y^2)^2]$
394. $(x^2 + y^2 - z^2)^2 - 4x^2y^2. \quad [(x + y + z)(x + y - z)(x - y + z)(x - y - z)]$
395. $x^2 + y^2 - 2xy - z^2 - w^2 - 2zw. \quad [(x - y + z + w)(x - y - z - w)]$
396. $a^2 + 2ab - 3b^2; \quad a^2 - 2ab + b^2 - c^2. \quad [(a + 3b)(a - b); [(a - b + c)(a - b - c)]$
397. $x^2 - y^2 - z^2 - 2yz; \quad x^2 - 2xy + y^2 - z^2. \quad [(x + y + z)(x - y - z); (x - y + z)(x - y - z)]$
398. $b^2 - a^2 + 2a - 1; \quad (x^3 - 2x^2 - 3x)(x^2 - 1). \quad [(b + a - 1)(b - a + 1); x(x - 3)(x + 1)^2(x - 1)]$
399. $a^4 - 3a^2b^2 + b^4; \quad (a^2 + a - 2)(a^2 - 1). \quad [(a^2 - b^2 + ab)(a^2 - b^2 - ab); (a + 2)(a - 1)^2(a + 1)]$
400. $m^9n + m^9n^{8p+1} - 2m^{5q}n^{4p+1}. \quad [m^9n(m^{2q} + n^{2p})^2(m^q + n^p)^2(m^q - n^p)^2]$
401. $x^{4a+2} + 4x^{2a+2} + 16x^2. \quad [x^2(x^{2a} + 2x^a + 4)(x^{2a} - 2x^a + 4)]$
402. $a^{2+2n} - y^{4n}; \quad m^{6p}n^{q+1} + m^{4p}n^{3q+1} + m^{2p}n^{5q+1}. \quad [(a^{1+n} + y^{2n})(a^{1+n} - y^{2n}); m^{2p}n^{q+1}(m^{2p} + n^{2q} + m^pn^q)(m^{2p} + n^{2q} - m^pn^q)]$