

calcola il m.c.m. tra i seguenti gruppi di polinomi

1	$x^2 - 1$ $x^2 - 2x + 1$ $3x - 3$	$3(x - 1)^2(x + 1)$
2	$xy^2 - x - y^2 + 1$ $9y^2 - 9$ $y^3 - 1$	$9(y - 1)(y + 1)(y^2 + y + 1)(x - 1)$
3	$2x - 2$ $5x - 5$ $3x - 3$	$30(x - 1)$
4	$x^2 - 6x + 9$ $x^2 - 5x + 6$ $x^2 - x - 6$	$(x - 3)^2(x^2 - 4)$
5	$3x^2 - 12$ $3x^3 + 24$ $6x + 12$	$6(x + 2)(x - 2)(x^2 - 2x + 4)$
6	$3x^2$ $2(x^2 + 3)$	$6x^2(x^2 + 3)$

calcola il M.C.D. tra i seguenti gruppi di polinomi

7	$x^2 - 1$ $x^2 - 2x + 1$ $3x - 3$	$x - 1$
8	$2x^4 - 2x^2$ $6x^6 - 6x^3$	$2x^2(x - 1)$
9	$x^2 + 5x + 4$ $x^2 + 8x + 16$ $x^2 + 4x$	$x + 4$
10	$xy^2 - x - y^2 + 1$ $9y^2 - 9$ $y^3 - 1$	$y - 1$
11	$x^2 + x - 2$ $x^2 - 4x + 3$ $x^3 - 1$	$x - 1$

calcola il M.C.D. e il m.c.m. tra i seguenti gruppi di polinomi

12	$2a^2 - 18$ $a^4 - 9a^3 + 27a^2 - 27a$	<i>MCD:</i> $(a - 3)$; <i>mcm:</i> $2a(a - 3)^3(a + 3)$
13	$6x^3$ $2x^3 + 8x^2 - 10x$ $x^5 + 5x^4 - 25x^3 - 125x^2$	<i>MCD:</i> x ; <i>mcm:</i> $6x^3(x - 1)(x - 5)(x + 5)^2$
14	$a^2 - b^2$ $a^3 - b^3$ $2a - 2b$	<i>MCD:</i> $(a - b)$; <i>mcm:</i> $2(a - b)(a^2 + ab + b^2)$
15	$a^3 - a$ $a^2 - 2a + 1$ $a^2 + a - 2$	<i>MCD:</i> $(a - 1)$; <i>mcm:</i> $a(a - 1)^2(a + 2)(a + 1)$
16	$3x^4 + 3x^3 - 6x^2$ $2x^5 + 4x^4 - 6x^3$ $6x^4 - 12x^3 + 6x^2$	<i>MCD:</i> $x^2(x - 1)$ <i>mcm:</i> $6x^3(x - 1)^2(x + 2)(x + 3)$
17	$8a^3b - 2ab^3$ $8a^3b - 4a^2b^2$ $12a^3b^2 - 12a^2b^3 + 3ab^4$	<i>MCD:</i> $ab(2a - b)$ <i>mcm:</i> $12a^2b(2a - b)^2(2a + b)$
18	$x^3 + y^3$ $4x^2 - 4xy + y^2$ $x^2 + 5xy + 6y^2$	<i>MCD:</i> 1 ; <i>mcm:</i> $(x + y)(x^2 - xy + y^2)(2x - y)^2 \times (x + 2y)(x + 3y)$
19	$5a^2 + 10a + 5$ $3 - 3a^2$ $6a - 6$ $2 + 2a$	<i>MCD:</i> 1 ; <i>mcm:</i> $30(a + 1)^2(a - 1)$
20	$a^2x^2 + 2$ $a^2x^2(a^4x^4 + 4)$	<i>MCD:</i> 1 ; <i>mcm:</i> $a^2x^2(a^2x^2 + 2)(a^4x^4 + 4)$
21	$3x^2 - 12$; $4x^2 - 16x + 16$ $x^2 - 2x$	<i>MCD:</i> $x - 2$ <i>mcm:</i> $12x(x - 2)^2(x + 2)$
22	$x^4 + x^2y^2$ $x^4 - y^4$ $x^4 + 2x^2y^2 + y^4$	<i>MCD:</i> $x^2 + y^2$ <i>mcm:</i> $x^2(x^2 + y^2)^2(x^2 - y^2)$
23	$a^3 - 2a^2 + a$ $a^4 - a^3$ $a^4 - a^2$	<i>MCD:</i> $a(a - 1)$ <i>mcm:</i> $a^3(a - 1)^2(a + 1)$

24	$m^4 - m^3$ $m^4 - m^2$ $m^4 - m$	$MCD: m(m - 1)$ $mcm: m^3(m - 1)(m + 1)(m^2 + m + 1)$
25	$a^2b^2 + a^2bc$ $ab^4 + ab^2c^2$ $a^3b^3 + a^3b^2c + a^2b^3x + a^2b^2xc$	$MCD: ab$ $mcm: a^2b^2(b^2 + c^2)(b + c)(a + x)$
26	$m^2 + m + mn + n$ $m^2 + m - mn - n$ $m^2 - m + mn - n$	$MCD: 1$ $mcm: (m^2 - n^2)(m^2 - 1)$
27	$x^4 - y^4$ $x^3 - x^2y - xy^2 + y^3$ $x^4 + y^4 - 2x^2y^2$	$MCD: x^2 - y^2$ $mcm: (x - y)^2(x + y)^2(x^2 + y^2)$
28	$m^3 - 1$ $m^3 - m$ $m^2 - 2m + 1$	$MCD: m - 1$ $mcm: m(m - 1)^2(m + 1)(m^2 + m + 1)$
29	$2u^5v - 2u^3v^3$ $4u^3v^2 + 4uv^4$ $-2u^2v^3 + 2u^4v$	$MCD: 2uv$ $mcm: 4u^3v^2(u + v)(u - v)(u^2 + v^2)$
30	$x^5 - 16x$ $x^5 - 4x^3$ $2x^3 - 8x - 4x^2 + 16$	$MCD: (x - 2)(x + 2)$ $mcm: 2x^3(x + 2)(x - 2)^2(x^2 + 4)$
31	$m^2 - 2mn + n^2 - 4$ $m - n + 2$ $m^2 - mn + 2m$	$MCD: m - n + 2$ $mcm: m(m - n + 2)(m - n - 2)$
32	$2x^3 - 2xy^2$ $xy - y^2$ $2x^2 - 4xy + 2y^2$	$MCD: x - y$ $mcm: 2xy(x - y)^2(x + y)$
33	$3m - 6n$ $6m + 12n$ $m^2 - 4n^2$	$MCD: 1$ $mcm: 6(m - 2n)(m + 2n)$
34	$x^2 - x + xz - z$ $x^2 - 1$ $xy - y - x + 1$	$MCD: x - 1$ $mcm: (x - 1)(x + 1)(x + z)(y - 1)$
35	$1 - 3a + 3a^2 - a^3$ $x + a - ax - a^2$ $x - ax$	$MCD: 1 - a$ $mcm: x(1 - a)^3(x + a)$

36	$(m^2 - 3m + 2)^2$ $m^3 - m^2 - 4m + 4$ $m^3 - nm^2 - 4m + 4n$	$MCD: m - 2$ $mcm: (m - 2)^2(m - 1)^2(m + 2)(m - n)$
37	$(x^2 - 9)(x^2 + 4)$ $(x^2 - 6x + 9)(x^3 + 4x)$ $(x^2 + 6x + 9)(x^4 + 4x^2)$	$MCD: (x^2 + 4)$ $mcm: x^2(x^2 + 4)(x - 3)^2(x + 3)^2$
38	$3a^3 - 4a^2 + 5a - 4$ $3a^3 + 5a^2 + 2a + 8$ $15a^2 + 5a + 20$	$MCD: 3a^2 - a + 4$ $mcm: 5(3a^2 - a + 4)(a - 1)(a + 2)$
38	$3a^3 - 2a^2 + 3a - 2$ $9a^2 - 4$ $3a^2 + a - 2$	$MCD: 3a - 2$ $mcm: (3a - 2)(3a + 2)(a^2 + 1)(a + 1)$
40	$6u^2 + u - 2$ $2u^2 - u$ $4u^3 - u$	$MCD: 2u - 1$ $mcm: u(2u - 1)(2u + 1)(3u + 2)$
41	$2m^3 + m^2 - 18m - 9$ $m^2 - m - 6$ $m^2 - 9$	$MCD: 1$ $mcm: (m + 2)(2m + 1)(m - 3)(m + 3)$
42	$a^2 + 3a + ab + 3b$ $a^2 + 2ab + b^2$ $a^3 - 9a + a^2b - 9b$	$MCD: a + b$ $mcm: (a + b)^2(a + 3)(a - 3)$
43	$t^2 - 5tz$ $4t^2 - 100z^2$ $\frac{t^2}{5} - 2tz + 5z^2$	$MCD: t - 5z$ $mcm: \frac{4}{5}t(t + 5z)(t - 5z)^2$
44	$2x^3 - x^2 - 7x + 6$ $2x^2 + 7x + 6$ $2x^2 + x - 3$ $2\pi x^2 - 3\pi x$	$MCD: 2x - 3$ $mcm: \pi x(x - 1)(x + 2)(2x + 3)$
45	$3x^2 - 12;$ $4x^2 - 16x + 16$ $x^2 - 2x$	$MCD: x - 2$ $mcm: 12x(x - 2)^2(x + 2)$
46	$4a - x^2 + a^2 + 4$ $5a + 10 + 5x$ $a^2 + x^2 + 4 + 4a + 2ax + 4x$	$MCD: (a + x + 2)$ $mcm: 5(a + x + 2)(a - x + 2)$

47	$x^{2n} - y^{2n}$ $x^{2n} + y^{2n} - 2x^n y^n$ $nx^n - ny^n$	<i>MCD:</i> $x^n - y^n$ <i>mcm:</i> $n(x^n - y^n)^2(x^n + y^n)$
48	$m^3 + m^2 - m - 1$ $m^2 + 2m + 1$ $\frac{m}{2} + \frac{1}{2}$	<i>MCD:</i> $m + 1$ <i>mcm:</i> $\frac{1}{2}(m - 1)(m + 1)^2$
49	$y^2 + 2y + 4$ $y^3 - 8$	<i>MCD:</i> $y^2 + 2y + 4$ <i>mcm:</i> $y^3 - 8$
50	$2x^2 + 18x + 16$ $2x^2 - 128$ $2x^2 - 14x - 16$	<i>MCD:</i> 2 <i>mcm:</i> $2(x - 8)(x + 8)(x + 1)$
51	$x^4 - 9$ $x^4 + x^2 - 6$ $x^3 + 3x$	<i>MCD:</i> $x^2 + 3$ <i>mcm:</i> $x(x^2 - 3)(x^2 + 3)(x^2 - 2)$
52	$x^3 - 4x^2 + 5x - 2$ $x^2 - 3x + 2$ $x^3 - 5x^2 + 8x - 4$	<i>MCD:</i> $(x - 1)(x - 2)$ <i>mcm:</i> $(x - 1)^2(x - 2)^2$
53	$x^2 - 1$ $x^2 + 2x + 1$ $x^3 + x^2$	<i>MCD:</i> $x + 1$ <i>mcm:</i> $x^2(x + 1)^2(x - 1)$
54	$3x^2 + 3$ $3x + 3$ $6x^2 - 6$	<i>MCD:</i> $3(x + 1)$ <i>mcm:</i> $6(x - 1)(x + 1)(x^2 - x + 1)$
55	$ax + x + a^2 + a$ $x^3 + a^3 + 3a^2x + 3ax^2$ $ax - x + a^2 - a$	<i>MCD:</i> $x + a$ <i>mcm:</i> $(x + a)^3(a - 1)(a + 1)$
56	$2(x - y)$ $x^2 - y^2$ $(x - y)^2$	<i>MCD:</i> $x - y$ <i>mcm:</i> $2(x + y)(x - y)^2$
57	$4x^2 + y^2 - 4xy$ $4x^2 + 4xy + y^2$ $10x - 5y$	<i>MCD:</i> 1 <i>mcm:</i> $5(2x - y)^2(2x + y)^2$
58	$(x - y)^2$ $(x + y)^2(x - y)^2$ $100x - 100y$	<i>MCD:</i> $(x - y)$ <i>mcm:</i> $100(x - y)^2(x + y)^2$

59	$x^2 - 16y^2$ $x^2 + ax - 4(xy + ay)$ $3x^2 - 24xy + 48y^2$	$MCD: x - 4y$ $mcm: 3(x - 4y)^2(x + 4y)(x + a)$
60	$3a^2 + 3ab$ $12a^3 - 12ab^2$ $6a^4b + 6ab^4$	$MCD: 3a(a + b)$ $mcm: 36ab(a^2 - b)^2(a^2 - ab + b^2)$
61	$a^2 - 4b^2$ $2a^3 - 4a^2b$ $(a - 2b)^2$	$MCD: a - 2b$ $mcm: 2a^2(a - 2b^2)(a + 2b)$
62	$a^6 - b^6$ $a^2 - b^2$ $a^3 + b^3$ $a^3 - b^3$	$MCD: 1$ $mcm: (a^2 - b^2)(a^2 + ab + b^2)(a^2 - ab + b^2)$
63	$3x^3 - 6x^2 - 45x$ $2x^4 - 2x^3 - 40x^2$ $6x^3 - 60x^2 + 150x$	$MCD: x(x - 5)$ $mcm: 6x^2(x - 5)^2(x + 3)(x + 4)$
64	$3x^4 + 3x^3 - 18x^2$ $2x^5 + 4x^4 - 16x^3$ $6x^4 - 24x^3 + 24x^2$	$MCD: x^2(x - 2)$ $mcm: 6x^3(x - 2)^2(x + 3)(x + 4)$