- $a^2 - 1 + a^2 x - x = a^2 (1 + x) - 1 (1 + x) = (1 + x) (a^2 - 1) = (1 + x) (a - 1) (a + 1)$
- $2x^4 - 32 = 2 (x^4 - 16) = 2 (x^2 + 4) (x^2 - 4) = 2 (x^2 + 4) (x + 2) (x - 2)$
- $a^2 b - 2a^2 - 4b + 8 = a^2 (b - 2) - 4 (b - 2) = (b - 2) (a^2 - 4) = (b - 2) (a + 2) (a - 2)$
- $3x^6 - 192 = 3 (x^6 - 64) = 3 (x^3 - 8) (x^3 + 8) = 3 (x - 2) (x^2 + 2x + 4) (x + 2) (x^2 - 2x + 4)$
- $x^5 - 6x^4 + 12x^3 - 8x^2 = x^2 (x^3 - 6x^2 + 12x - 8) = x^2 (x - 2)^3$
- $a^3 + 4a^2 - 21a = a (a^2 + 4a - 21) = a (a + 7) (a - 3)$
- $3x^3 + x^2 - 27x - 9 = x^2 (3x + 1) - 9 (3x + 1) = (3x + 1) (x^2 - 9) = (3x + 1) (x + 3) (x - 3)$
- $2a^2 - 7a - 4 = 2a^2 - 8a + a - 4 = 2a (a - 4) + 1 (a - 4) = (a - 4) (2a + 1)$
- $\frac{1}{27} a^3 - a^2 b + 9ab^2 - 27b^3 = \left(\frac{1}{3} a - 3b \right)^3$
- $a^4 - 5a^2 + 4 = (a^2 - 4) (a^2 - 1) = (a - 2) (a + 2) (a - 1) (a + 1)$
- $2x^4 - 10x^3 + 14x^2 - 6x = 2x (x^3 - 5x^2 + 7x - 3) = 2x (x - 1) (x^2 - 4x + 3) = 2x (x - 1)^2 (x - 3)$
- $-a^4 b^4 + \frac{16}{81} = \left(-a^2 b^2 + \frac{4}{9} \right) \left(a^2 b^2 + \frac{4}{9} \right) = \left(-ab + \frac{2}{3} \right) \left(ab + \frac{2}{3} \right) \left(a^2 b^2 + \frac{4}{9} \right)$
- $x^3 + 14x^2 + 49x = x (x^2 + 14x + 49) = x (x + 7)^2$
- $ax^2 + 2a^2 x - 15a^3 = a (x^2 + 2ax - 15a^2) = a (x + 5a) (x - 3a)$
- $x^2 - xy - 20y^2 = (x - 5y) (x + 4y)$
- $2a^6 + 2 = 2 (a^6 + 1) = 2 (a^2 + 1) (a^4 - a^2 + 1)$
- $2x^2 - 5x - 18 = 2x^2 + 4x - 9x - 18 = 2x (x + 2) - 9 (x + 2) = (x + 2) (2x - 9)$
- $x^{10} - 2x^7 + x^4 = x^4 (x^6 - 2x^3 + 1) = x^4 (x^3 - 1)^2 = x^4 (x - 1)^2 (x^2 + x + 1)^2$
- $a^6 - 3a^4 b^2 + 3a^2 b^4 - b^6 = (a^2 - b^2)^3 = (a - b)^3 (a + b)^3$
- $a^4 - 2a^2 b - 48b^2 = (a^2 - 8b) (a^2 + 6b)$

Trova M.C.D. e m.c.m. dei seguenti gruppi di polinomi:

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

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

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

M.C.D. $a - b$

m.c.m. $2(a - b)(a + b)(a^2 + ab + b^2)$

$a^3 - a = a(a^2 - 1) = a(a - 1)(a + 1)$

$a^2 - 2a + 1 = (a - 1)^2$

$a^2 + a - 2 = (a + 2)(a - 1)$

M.C.D. $a - 1$

m.c.m. $a(a - 1)^2(a + 1)(a + 2)$

$a^2x - a^2y + abx - aby = a(ax - ay + bx - by) = a[a(x - y) + b(x - y)] =$

$= a(x - y)(a + b)$

$2a^4 - 2a^2b^2 = 2a^2(a^2 - b^2) = 2a^2(a - b)(a + b)$

M.C.D. $a(a + b)$

m.c.m. $2a^2(a - b)(a + b)(x - y)$