

1 因数分解/2次式

次の式を因数分解せよ.

(1) $x^2 - 16$

(2) $x^2 - 1$

(3) $9x^2 - 25$

(4) $x^2 - 18x + 81$

(5) $9x^2 - 30xy + 25y^2$

(6) $4x^2 - 12x + 9$

(7) $x^2 + 7x + 10$

(8) $x^2 - 5xy + 6y^2$

(9) $x^2 - 7xy + 12y^2$

(10) $2x^2 + 20x + 42$

(11) $2x^2 - 14x + 20$

(12) $-4x^2 + 48x - 140$

(13) $-2ab^2 - 28ab - 98a$

(14) $3ab^2 - 27a$

(15) $-4y^2 + 16y + 180$

2 因数分解/3次式

次の式を因数分解せよ.

(1) $64a^3 - b^3$

(2) $x^3 + 64$

(3) $64a^3 + 27b^3$

(4) $x^3 - 8$

(5) $8x^3 + y^3$

(6) $x^3 + 27$

(7) $8x^3 + 27y^3$

(8) $x^3 - 9x^2y + 27xy^2 - 27y^3$

(9) $x^3 + 3x^2 + 3x + 1$

(10) $x^3 + 6x^2 + 12x + 8$

(11) $2x^4y - 16xy^4$

(12) $x^4 + x$

(13) $8a^3 - 64b^3$

(14) $3x^3 - 81y^3$

3 因数分解/たすき掛け

次の式を因数分解せよ.

(1) $4x^2 + 20x + 21$

(2) $3x^2 - 16x + 21$

(3) $2x^2 - 13x - 45$

(4) $3x^2 - 19x - 14$

(5) $4x^2 - 27x + 35$

(6) $3x^2 + 13x + 14$

(7) $2x^2 + 19x + 35$

(8) $3x^2 + 14x + 15$

(9) $2x^2 - 3x + 1$

(10) $3x^2 + 17x - 28$

(11) $3x^2 + 10x + 7$

(12) $3x^2 + 8x + 4$

(13) $6x^2 - 5x - 6$

(14) $3x^2 + 14x - 5$

(15) $3x^2 - 19x + 6$

(16) $3x^2 + 32x + 64$

(17) $2x^2 + 5x - 7$

(18) $4x^2 - 27x + 18$

4 因数分解/置き換え

次の式を因数分解せよ.

(1) $(x^2 - 2x + 1)(x^2 - 2x - 12) + 36$

$$(2) (x - y + 1)^2 - 4(x - y + 1) + 4$$

$$(3) (x^2 - x + 1)(x^2 - x + 2) - 12$$

$$(4) (x + y)^2 - 16(y - z)^2$$

$$(5) x^4 + x^2 - 2$$

$$(6) (x - 1)^2 + 7(x - 1) + 10$$

$$(7) (x + y)^2 - 7(x + y) - 30$$

$$(8) x^2 - 4(y + z)x + 3(y + z)^2$$

$$(9) 6(a - 2)^2 - 7(a - 2) - 3$$

$$(10) (x^2 + 2x)(x^2 + 2x - 4) + 3$$

$$(11) (x + y)^2 + 6(x + y) + 9$$

(12) $x^4 - 10x^2 + 9$

(13) $x^4 - 13x^2 + 36$

(14) $x^4 + 2x^2 - 3$

(15) $(2x + 1)^3 - (x - 2)^3$

(16) $(a + 2)^3 - 27$

5 因数分解/グループ分け

次の式を因数分解せよ.

(1) $x^2 - 6x + 9 - 4y^2$

(2) $9x^4 - 4x^2 + 8xy - 4y^2$

(3) $x^2 - y^2 - 4y - 4$

(4) $x^2 + 4x + 4 - y^2$

(5) $a^2 + 4b^2 - 9c^2 - 4ab$

(6) $9x^2 - 4y^2 - 6x + 1$

(7) $4x^2 - y^2 + 2y - 1$

6 因数分解/グループ分け・最低次数

次の式を因数分解せよ.

(1) $4 - 4y + 2xy - x^2$

(2) $xy - x - y + 1$

(3) $2x^2 + 5xy + 2y^2 + x + 5y - 3$

(4) $a^2b + a^2 - b - 1$

(5) $a^2 + b^2 + bc - ca - 2ab$

(6) $6x^2 + 7xy - 5y^2 - 11x + 12y - 7$

(7) $4x^2y - 4x^2z + y^2z - y^3$

(8) $x^2 - 9y + 3xy - 9$

(9) $x^2 + 6y - 3xy - 4$

7 因数分解/たすき掛け

次の式を因数分解せよ.

$$(1) x^2 + (5y + 5)x + (2y + 3)(3y + 2)$$

$$(2) x^2 + (2y - 3)x - (3y - 4)(y - 1)$$

$$(3) a^2 + ab - 4a - b + 3$$

(4) $x^2 + 3xy + 2y^2 - x - 3y - 2$

(5) $x^2 - xy - 6y^2 + 3x + y + 2$

(6) $x^2 + ax + x + 2a - 2$

(7) $x^2 - 2ax + a^2 - x + a - 2$

(8) $x^2 + 3xy + 2y^2 - 2x - 3y + 1$

(9) $x^2 + 3xy + 2y^2 - 4x - 7y + 3$

(10) $x^2 - 3xy - 10y^2 + 2x + 25y - 15$

(11) $x^2 + 3ax - 9a - 9$

8 因数分解/いろいろ

次の式を因数分解せよ.

(1) $ab(a - b) + bc(b - c) + ca(c - a)$

(2) $(x - 1)(x - 2)(x - 3)(x - 4) - 48$

$$(3) (a + b + c)(ab + bc + ca) - abc$$

$$(4) (b + c)a^2 + (c + a)b^2 + (a + b)c^2 + 2abc$$

$$(5) ab + ac + b^2 + bc$$

$$(6) a(b^2 - c^2) + b(c^2 - a^2) + c(a^2 - b^2)$$

$$(7) a(b^2 - c^2) + b(c^2 - a^2) + c(a^2 - b^2)$$

$$(8) a^2b + b^2c - a^2c - b^3$$

(9) $(a - b)^3 + (b - c)^3 + (c - a)^3$

(10) $a^2(b - c) + b^2(c - a) + c^2(a - b)$