

因数分解②

1 **解答** (1)  $(x+2)(x+4)$  (2)  $(x-3)(x-4)$  (3)  $(x+3)(x+9)$  (4)  $(x-4)(x-6)$

(1)  $x^2 + 6x + 8 = x^2 + (2+4)x + 2 \times 4$   
 $= (x+2)(x+4)$

(2)  $x^2 - 7x + 12 = x^2 + (-3) + (-4)x + (-3) \times (-4)$   
 $= (x-3)(x-4)$

(3)  $x^2 + 12x + 27 = x^2 + (3+9)x + 3 \times 9$   
 $= (x+3)(x+9)$

(4)  $x^2 - 10x + 24 = x^2 + (-4) + (-6)x + (-4) \times (-6)$   
 $= (x-4)(x-6)$

2 **解答** (1)  $(x+1)(x-5)$  (2)  $(x+7)(x-1)$  (3)  $(x+4)(x-2)$  (4)  $(x+3)(x-5)$

(5)  $(y+7)(y-2)$  (6)  $(a+3)(a-10)$

(1)  $x^2 - 4x - 5 = x^2 + \{1 + (-5)\}x + 1 \times (-5)$   
 $= (x+1)(x-5)$

(2)  $x^2 + 6x - 7 = x^2 + \{7 + (-1)\}x + 7 \times (-1)$   
 $= (x+7)(x-1)$

(3)  $x^2 + 2x - 8 = x^2 + \{4 + (-2)\}x + 4 \times (-2)$   
 $= (x+4)(x-2)$

(4)  $x^2 - 2x - 15 = x^2 + \{3 + (-5)\}x + 3 \times (-5)$   
 $= (x+3)(x-5)$

(5)  $y^2 + 5y - 14 = y^2 + \{7 + (-2)\}y + 7 \times (-2)$   
 $= (y+7)(y-2)$

(6)  $a^2 - 7a - 30 = a^2 + \{3 + (-10)\}a + 3 \times (-10)$   
 $= (a+3)(a-10)$

3 **解答** (1)  $(x+1)^2$  (2)  $(x-5)^2$  (3)  $(x+2)(x-2)$  (4)  $(y+7)(y-7)$

(1)  $x^2 + 2x + 1 = x^2 + 2 \times 1 \times x + 1^2$   
 $= (x+1)^2$

(2)  $x^2 - 10x + 25 = x^2 - 2 \times 5 \times x + 5^2$   
 $= (x-5)^2$

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

$= (x+2)(x-2)$

(4)  $y^2 - 49 = y^2 - 7^2$   
 $= (y+7)(y-7)$

4 **解答** (1)  $(x+7)^2$  (2)  $(x-8)^2$  (3)  $(x+10)(x-10)$  (4)  $(y-\frac{1}{2})^2$

(5)  $(a+\frac{1}{4})(a-\frac{1}{4})$  (6)  $(3+t)(3-t)$

(1)  $x^2 + 14x + 49 = x^2 + 2 \times 7 \times x + 7^2$   
 $= (x+7)^2$

(2)  $x^2 - 16x + 64 = x^2 - 2 \times 8 \times x + 8^2$   
 $= (x-8)^2$

(3)  $x^2 - 100 = x^2 - 10^2$   
 $= (x+10)(x-10)$

(4)  $y^2 - y + \frac{1}{4} = y^2 - 2 \times \frac{1}{2} \times y + (\frac{1}{2})^2$   
 $= (y-\frac{1}{2})^2$

(5)  $a^2 - \frac{1}{16} = a^2 - (\frac{1}{4})^2$   
 $= (a+\frac{1}{4})(a-\frac{1}{4})$

(6)  $9 - t^2 = 3^2 - t^2$   
 $= (3+t)(3-t)$   
 $[9 - t^2 = -(t^2 - 9) = -(t+3)(t-3) \text{ としてもよい}]$

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- 解答 (1)  $(x-5y)(x-6y)$  (2)  $(x+3y)(x+7y)$  (3)  $(x+5y)(x-8y)$   
 (4)  $(x-3y)(x-6y)$  (5)  $(x-3y)(x-4y)$  (6)  $(x-2y)(x+10y)$   
 (7)  $(x-y)(x-2y)$  (8)  $(x+2y)(x+4y)$  (9)  $(x+4y)(x-6y)$   
 (10)  $(a+2b)(a-3b)$  (11)  $(m-3n)(m+9n)$  (12)  $(p+4q)(p-5q)$   
 (13)  $(s-3t)(s-4t)$  (14)  $(a+7b)(a-12b)$  (15)  $(m-6n)(m-8n)$
- (1)  $x^2 - 11xy + 30y^2 = (x-5y)(x-6y)$   
 (2)  $x^2 + 10xy + 21y^2 = (x+3y)(x+7y)$   
 (3)  $x^2 - 3xy - 40y^2 = (x+5y)(x-8y)$   
 (4)  $x^2 - 9xy + 18y^2 = (x-3y)(x-6y)$   
 (5)  $x^2 - 7xy + 12y^2 = (x-3y)(x-4y)$   
 (6)  $x^2 + 8xy - 20y^2 = (x-2y)(x+10y)$   
 (7)  $x^2 - 3xy + 2y^2 = (x-y)(x-2y)$   
 (8)  $x^2 + 6xy + 8y^2 = (x+2y)(x+4y)$   
 (9)  $x^2 - 2xy - 24y^2 = (x+4y)(x-6y)$   
 (10)  $a^2 - ab - 6b^2 = (a+2b)(a-3b)$   
 (11)  $m^2 + 6mn - 27n^2 = (m-3n)(m+9n)$   
 (12)  $p^2 - pq - 20q^2 = (p+4q)(p-5q)$   
 (13)  $s^2 - 7st + 12t^2 = (s-3t)(s-4t)$   
 (14)  $a^2 - 5ab - 84b^2 = (a+7b)(a-12b)$   
 (15)  $m^2 - 14mn + 48n^2 = (m-6n)(m-8n)$