

<乗法の公式>

1. (1) $(x+8)(x-8)$

$$=x^2-8^2$$

$$=x^2-64$$

(3) $(5x+1)(5x-1)$

$$=(5x)^2-1^2$$

$$=25x^2-1$$

(5) $\left(x-\frac{1}{3}\right)\left(x+\frac{1}{3}\right)$

$$=x^2-\left(\frac{1}{3}\right)^2$$

$$=x^2-\frac{1}{9}$$

(2) $(3-x)(3+x)$

$$=3^2-x^2$$

$$=9-x^2$$

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

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

$$=9x^2-4y^2$$

(6) $(a-6b)(a+6b)$

$$=a^2-(6b)^2$$

$$=a^2-36b^2$$

2. (1) $(x-3)^2-(x-1)(x+7)$

$$=x^2-6x+9-(x^2+6x-7)$$

$$=-12x+16$$

(2) $(x+2)(x+9)-x(x+10)$

$$=x^2+11x+18-x^2-10x$$

$$=x+18$$

3. (1) $(x+7)(x+4)$

$$=x^2+11x+28$$

(3) $(x-8)(x+1)$

$$=x^2-7x-8$$

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

$$=x^2+8x+16$$

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

$$=16x^2-24xy+9y^2$$

(9) $(x+1)(x-1)$

$$=x^2-1$$

(2) $(x+10)(x-2)$

$$=x^2+8x-20$$

(4) $(x-4y)(x-9y)$

$$=x^2-13xy+36y^2$$

(6) $(3x-2)^2$

$$=9x^2-12x+4$$

(8) $\left(\frac{1}{2}x+2\right)^2$

$$=\frac{1}{4}x^2+2x+4$$

(10) $(x-7y)(x+7y)$

$$=x^2-49y^2$$

$$\begin{aligned}
 4. (1) \quad & \left(x + \frac{2}{3}\right)\left(x - \frac{1}{3}\right) \\
 & = x^2 - \frac{1}{3}x + \frac{2}{3}x - \frac{2}{9} \\
 & = x^2 + \frac{1}{3}x - \frac{2}{9}
 \end{aligned}$$

$$\begin{aligned}
 (3) \quad & (1-x)^2 \\
 & = 1 - 2x + x^2
 \end{aligned}$$

$$\begin{aligned}
 (5) \quad & (-5x+1)(5x+1) \\
 & = (1-5x)(1+5x) \\
 & = 1 - 25x^2
 \end{aligned}$$

$$\begin{aligned}
 5. (1) \quad & (x-7)(x+7) - (x-6)^2 \\
 & = x^2 - 49 - (x^2 - 12x + 36) \\
 & = 12x - 85
 \end{aligned}$$

$$\begin{aligned}
 (3) \quad & (x+2)(x+3) - (x-6)(x+1) \\
 & = x^2 + 5x + 6 - (x^2 - 5x - 5) \\
 & = 10x + 12
 \end{aligned}$$

$$\begin{aligned}
 (5) \quad & (2x+y)^2 - (x-3y)(x+3y) \\
 & = 4x^2 + 4xy + y^2 - (x^2 - 9y^2) \\
 & = 3x^2 + 4xy + 10y^2
 \end{aligned}$$

$$\begin{aligned}
 (2) \quad & \left(a - \frac{1}{2}\right)\left(x - \frac{1}{4}\right) \\
 & = ax - \frac{1}{4}a - \frac{1}{2}x + \frac{1}{8}
 \end{aligned}$$

$$\begin{aligned}
 (4) \quad & (5-t)(5+t) \\
 & = 25 - t^2
 \end{aligned}$$

$$\begin{aligned}
 (6) \quad & \left(2x + \frac{1}{2}y\right)\left(2x - \frac{1}{2}y\right) \\
 & = 4x^2 - \frac{1}{4}y^2
 \end{aligned}$$

$$\begin{aligned}
 (2) \quad & (x+1)(x+5) + (x-2)(x-4) \\
 & = x^2 + 6x + 5 + x^2 - 6x + 8 \\
 & = 2x^2 + 13
 \end{aligned}$$

$$\begin{aligned}
 (4) \quad & (a+b)^2 - (a-b)^2 \\
 & = a^2 + 2ab + b^2 - (a^2 - 2ab + b^2) \\
 & = 4ab
 \end{aligned}$$