

式の計算③

1 解答 (1)  $4x^2 + 8x + 3$  (2)  $16a^2 - 16a - 21$  (3)  $64y^2 - 48y + 5$

(4)  $9x^2 - 27x + 14$  (5)  $36a^2 - 36a + 5$  (6)  $\frac{1}{4}x^2 + x - 3$

(1)  $(2x + 3)(2x + 1) = (2x)^2 + (3 + 1) \times 2x + 3 \times 1$   
 $= 4x^2 + 8x + 3$

(2)  $(4a + 3)(4a - 7) = (4a)^2 + (3 - 7) \times 4a + 3 \times (-7)$   
 $= 16a^2 - 16a - 21$

(3)  $(8y - 1)(8y - 5) = (8y)^2 + (-1 - 5) \times 8y + (-1) \times (-5)$   
 $= 64y^2 - 48y + 5$

(4)  $(3x - 7)(3x - 2) = (3x)^2 + (-7 - 2) \times 3x + (-7) \times (-2)$   
 $= 9x^2 - 27x + 14$

(5)  $(-6a + 1)(-6a + 5) = (-6a)^2 + (1 + 5) \times (-6a) + 1 \times 5$   
 $= 36a^2 - 36a + 5$

(6)  $\left(\frac{1}{2}x + 3\right)\left(\frac{1}{2}x - 1\right) = \left(\frac{1}{2}x\right)^2 + (3 - 1) \times \left(\frac{1}{2}x\right) + 3 \times (-1)$   
 $= \frac{1}{4}x^2 + x - 3$

2 解答 (1)  $x^2 + 12x + 36$  (2)  $a^2 + 20a + 100$  (3)  $x^2 - 8x + 16$

(4)  $a^2 - 3a + \frac{9}{4}$

(1)  $(x + 6)^2 = x^2 + 2 \times 6 \times x + 6^2 = x^2 + 12x + 36$

(2)  $(a + 10)^2 = a^2 + 2 \times 10 \times a + 10^2 = a^2 + 20a + 100$

(3)  $(x - 4)^2 = x^2 - 2 \times 4 \times x + 4^2 = x^2 - 8x + 16$

(4)  $\left(a - \frac{3}{2}\right)^2 = a^2 - 2 \times \frac{3}{2} \times a + \left(\frac{3}{2}\right)^2 = a^2 - 3a + \frac{9}{4}$

3 解答 (1)  $9x^2 - y^2$  (2)  $25x^2 - 9y^2$  (3)  $16a^2 - 81b^2$  (4)  $4x^2 - 49y^2$

(5)  $9m^2 - 64n^2$  (6)  $25p^2 - 36q^2$  (7)  $\frac{1}{9}x^2 - \frac{9}{16}y^2$  (8)  $\frac{1}{16}a^2 - \frac{1}{25}b^2$

(9)  $a^2 - \frac{1}{49}b^2$

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

(2)  $(5x + 3y)(5x - 3y) = (5x)^2 - (3y)^2$   
 $= 25x^2 - 9y^2$

(3)  $(4a - 9b)(4a + 9b) = (4a)^2 - (9b)^2$   
 $= 16a^2 - 81b^2$

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

(5)  $(3m - 8n)(3m + 8n) = (3m)^2 - (8n)^2$   
 $= 9m^2 - 64n^2$

(6)  $(5p + 6q)(5p - 6q) = (5p)^2 - (6q)^2$   
 $= 25p^2 - 36q^2$

(7)  $\left(\frac{1}{3}x + \frac{3}{4}y\right)\left(\frac{1}{3}x - \frac{3}{4}y\right) = \left(\frac{1}{3}x\right)^2 - \left(\frac{3}{4}y\right)^2$   
 $= \frac{1}{9}x^2 - \frac{9}{16}y^2$

(8)  $\left(\frac{1}{4}a - \frac{1}{5}b\right)\left(\frac{1}{4}a + \frac{1}{5}b\right) = \left(\frac{1}{4}a\right)^2 - \left(\frac{1}{5}b\right)^2$   
 $= \frac{1}{16}a^2 - \frac{1}{25}b^2$

(9)  $\left(\frac{1}{7}b + a\right)\left(a - \frac{1}{7}b\right) = \left(a + \frac{1}{7}b\right)\left(a - \frac{1}{7}b\right)$   
 $= a^2 - \left(\frac{1}{7}b\right)^2$   
 $= a^2 - \frac{1}{49}b^2$