

# 1 多項式① ～多項式の計算～

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|----|--|---|--|----|--|
| 学年 |  | 組 |  | 氏名 |  |
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1 次の計算をなさい。

$$\begin{aligned}
 (1) \quad & (5x - 2y + 3) \times (-3y) \\
 & = 5x \times (-3y) - 2y \times (-3x) + 3 \times (-3y) \\
 & = -15xy + 6y^2 - 9y
 \end{aligned}$$

$$-15xy - 6y^2 - 9y$$

$$\begin{aligned}
 (2) \quad & (6a^2b - 12ab^2) \div \left(-\frac{2}{3}ab\right) \\
 & = (6a^2b - 12ab^2) \times \left(-\frac{3}{2ab}\right) \\
 & = -\frac{6a^2b \times 3}{2ab} + \frac{12ab^2 \times 3}{2ab} \\
 & = -9a + 18b
 \end{aligned}$$

$$-9a + 18b$$

$$\begin{aligned}
 (3) \quad & (x + 5)(x - 3) - (x - 2)(x + 1) \\
 & = x^2 + 2x - 15 - (x^2 - x - 2) \\
 & = x^2 + 2x - 15 - x^2 + x + 2 \\
 & = x^2 - x^2 + 2x + x - 15 + 2 \\
 & = 3x - 13
 \end{aligned}$$

$$3x - 13$$

$$\begin{aligned}
 (4) \quad & (2x + 4y)(2x - 4y) - 3(x + y)^2 \\
 & = (2x)^2 - (4y)^2 - 3(x^2 + 2xy + y^2) \\
 & = 4x^2 - 16y^2 - 3x^2 - 6xy - 3y^2 \\
 & = 4x^2 - 3x^2 - 6xy - 16y^2 - 3y^2 \\
 & = x^2 - 6xy - 19y^2
 \end{aligned}$$

$$x^2 - 6xy - 19y^2$$

2 次の式を展開しなさい。

$$\begin{aligned}
 (1) \quad & (3x + 2)(3x + 3) \\
 & = (3x)^2 + (2 + 3) \times 3x + 6 \\
 & = 9x^2 + 15x + 6
 \end{aligned}$$

$$9x^2 + 15x + 6$$

$$\begin{aligned}
 (2) \quad & (10 - 2x)^2 \\
 & = 100 - 2 \times 10 \times 2x + (2x)^2 \\
 & = 100 - 40x + 4x^2
 \end{aligned}$$

$$100 - 40x + 4x^2$$

$$\begin{aligned}
 (3) \quad & (3x + 5y)^2 \\
 & = (3x)^2 + 2 \times 5y \times 3x + (5y)^2 \\
 & = 9x^2 + 30xy + 25y^2
 \end{aligned}$$

$$9x^2 + 30xy + 25y^2$$

$$\begin{aligned}
 (4) \quad & (a + b - 5)(a + b + 5) \\
 & a + b = M \text{ とすると、もとの式は} \\
 & (M - 5)(M + 5) = M^2 - 5^2 \text{ となる。} \\
 & M \text{ を } a + b \text{ に戻すと } (a + b)^2 - 25 \\
 & = a^2 + 2ab + b^2 - 25
 \end{aligned}$$

※ 一つ一つ分配法則  
を使って計算しても  
よい。

$$a^2 + 2ab + b^2 - 25$$