

1 次の式を展開しなさい。

① $(4x + 2)(4x + 3)$

② $(2x + 4y)^2$

③ $(3x - 7y)^2$

④ $(9x + 5y)(9x - 5y)$

⑤ $(-8x - 2y)^2$

⑥ $(6 + 3x)(6 - 3x)$

2 次の式を工夫して計算しなさい。

① 202×198

② 294^2

③ 303^2

④ 197×205

1 次の式を展開しなさい。

$$\begin{aligned} \textcircled{1} \quad & (4x+2)(4x+3) \\ & = (4x)^2 + (2+3) \times 4x + 2 \times 3 \\ & = 16x^2 + 20x + 6 \end{aligned}$$

$$\begin{aligned} \textcircled{2} \quad & (2x+4y)^2 \\ & = (2x)^2 + 2 \times 4y \times 2x + (4y)^2 \\ & = 4x^2 + 16xy + 16y^2 \end{aligned}$$

$$\begin{aligned} \textcircled{3} \quad & (3x-7y)^2 \\ & = (3x)^2 - 2 \times 7y \times 3x + (7y)^2 \\ & = 9x^2 - 42xy + 49y^2 \end{aligned}$$

$$\begin{aligned} \textcircled{4} \quad & (9x+5y)(9x-5y) \\ & = (9x)^2 - (5y)^2 \\ & = 81x^2 - 25y^2 \end{aligned}$$

$$\begin{aligned} \textcircled{5} \quad & (-8x-2y)^2 \\ & = (-8x)^2 - 2 \times 2y \times (-8x) + (2y)^2 \\ & = 64x^2 + 32xy + 4y^2 \end{aligned}$$

$$\begin{aligned} \textcircled{6} \quad & (6+3x)(6-3x) \\ & = 6^2 - (3x)^2 \\ & = 36 - 9x^2 \end{aligned}$$

2 次の式を工夫して計算しなさい。

$$\begin{aligned} \textcircled{1} \quad & 202 \times 198 \\ & = (200+2)(200-2) \\ & = 200^2 - 2^2 \\ & = 40000 - 4 \\ & = 39996 \end{aligned}$$

$$\begin{aligned} \textcircled{2} \quad & 294^2 \\ & = (300-6)^2 \\ & = 300^2 - 2 \times 6 \times 300 + 6^2 \\ & = 90000 - 3600 + 36 \\ & = 86436 \end{aligned}$$

$$\begin{aligned} \textcircled{3} \quad & 303^2 \\ & = (300+3)^2 \\ & = 300^2 + 2 \times 3 \times 300 + 3^2 \\ & = 90000 + 1800 + 9 \\ & = 91809 \end{aligned}$$

$$\begin{aligned} \textcircled{4} \quad & 197 \times 205 \\ & = (200-3)(200+5) \\ & = 200^2 + \{(-3)+5\} \times 200 + (-3) \times 5 \\ & = 40000 + 400 - 15 \\ & = 40385 \end{aligned}$$