

1 次の式を展開しなさい。

①  $(4x + 7)(4x + 6)$

②  $(2x + 3y)^2$

③  $(6x - 4y)^2$

④  $(7x + 2y)(7x - 2y)$

⑤  $(-3x - 4y)^2$

⑥  $(5 + 6x)(5 - 6x)$

2 次の式を工夫して計算しなさい。

①  $102 \times 98$

②  $99^2$

③  $103^2$

④  $95 \times 104$

1 次の式を展開しなさい。

$$\begin{aligned} \textcircled{1} \quad & (4x+7)(4x+6) \\ & = (4x)^2 + (7+6) \times 4x + 7 \times 6 \\ & = 16x^2 + 52x + 42 \end{aligned}$$

$$\begin{aligned} \textcircled{2} \quad & (2x+3y)^2 \\ & = (2x)^2 + 2 \times 3y \times 2x + (3y)^2 \\ & = 4x^2 + 12xy + 9y^2 \end{aligned}$$

$$\begin{aligned} \textcircled{3} \quad & (6x-4y)^2 \\ & = (6x)^2 - 2 \times 4y \times 6x + (4y)^2 \\ & = 36x^2 - 48xy + 16y^2 \end{aligned}$$

$$\begin{aligned} \textcircled{4} \quad & (7x+2y)(7x-2y) \\ & = (7x)^2 - (2y)^2 \\ & = 49x^2 - 4y^2 \end{aligned}$$

$$\begin{aligned} \textcircled{5} \quad & (-3x-4y)^2 \\ & = (-3x)^2 - 2 \times 4y \times (-3x) + (4y)^2 \\ & = 9x^2 + 24xy + 16y^2 \end{aligned}$$

$$\begin{aligned} \textcircled{6} \quad & (5+6x)(5-6x) \\ & = 5^2 - (6x)^2 \\ & = 25 - 36x^2 \end{aligned}$$

2 次の式を工夫して計算しなさい。

$$\begin{aligned} \textcircled{1} \quad & 102 \times 98 \\ & = (100+2)(100-2) \\ & = 100^2 - 2^2 \\ & = 10000 - 4 \\ & = 9996 \end{aligned}$$

$$\begin{aligned} \textcircled{2} \quad & 99^2 \\ & = (100-1)^2 \\ & = 100^2 - 2 \times 1 \times 100 + 1^2 \\ & = 10000 - 200 + 1 \\ & = 9801 \end{aligned}$$

$$\begin{aligned} \textcircled{3} \quad & 103^2 \\ & = (100+3)^2 \\ & = 100^2 + 2 \times 3 \times 100 + 3^2 \\ & = 10000 + 600 + 9 \\ & = 10609 \end{aligned}$$

$$\begin{aligned} \textcircled{4} \quad & 95 \times 104 \\ & = (100-5)(100+4) \\ & = 100^2 + \{(-5)+4\} \times 100 + (-5) \times 4 \\ & = 10000 - 100 - 20 \\ & = 9880 \end{aligned}$$