

1 次の式を展開しなさい。

① $(3x + 4)(3x + 2)$

② $(5x + 6y)^2$

③ $(2x - 3y)^2$

④ $(4x + 5y)(4x - 5y)$

⑤ $(-7x - 6y)^2$

⑥ $(8 + 2x)(8 - 2x)$

2 次の式を工夫して計算しなさい。

① 205×195

② 92^2

③ 110^2

④ 201×198

1 次の式を展開しなさい。

$$\begin{aligned} \textcircled{1} \quad & (3x+4)(3x+2) \\ &= (3x)^2 + (4+2) \times 3x + 4 \times 2 \\ &= 9x^2 + 18x + 8 \end{aligned}$$

$$\begin{aligned} \textcircled{2} \quad & (5x+6y)^2 \\ &= (5x)^2 + 2 \times 6y \times 5x + (6y)^2 \\ &= 25x^2 + 60xy + 36y^2 \end{aligned}$$

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

$$\begin{aligned} \textcircled{4} \quad & (4x+5y)(4x-5y) \\ &= (4x)^2 - (5y)^2 \\ &= 16x^2 - 25y^2 \end{aligned}$$

$$\begin{aligned} \textcircled{5} \quad & (-7x-6y)^2 \\ &= (-7x)^2 - 2 \times 6y \times (-7x) + (6y)^2 \\ &= 49x^2 + 84xy + 36y^2 \end{aligned}$$

$$\begin{aligned} \textcircled{6} \quad & (8+2x)(8-2x) \\ &= 8^2 - (2x)^2 \\ &= 64 - 4x^2 \end{aligned}$$

2 次の式を工夫して計算しなさい。

$$\begin{aligned} \textcircled{1} \quad & 205 \times 195 \\ &= (200+5)(200-5) \\ &= 200^2 - 5^2 \\ &= 40000 - 25 \\ &= 39975 \end{aligned}$$

$$\begin{aligned} \textcircled{2} \quad & 92^2 \\ &= (100-8)^2 \\ &= 100^2 - 2 \times 8 \times 100 + 8^2 \\ &= 10000 - 1600 + 64 \\ &= 8464 \end{aligned}$$

$$\begin{aligned} \textcircled{3} \quad & 110^2 \\ &= (100+10)^2 \\ &= 100^2 + 2 \times 10 \times 100 + 10^2 \\ &= 10000 + 2000 + 100 \\ &= 12100 \end{aligned}$$

$$\begin{aligned} \textcircled{4} \quad & 201 \times 198 \\ &= (200+1)(200-2) \\ &= 200^2 + \{1 + (-2)\} \times 200 + 1 \times (-2) \\ &= 40000 - 200 - 2 \\ &= 39798 \end{aligned}$$