

1 次の式を展開しなさい。

① $(3x + 5)(3x + 8)$

② $(4x + 9y)^2$

③ $(6x - 2y)^2$

④ $(7x + 9y)(7x - 9y)$

⑤ $(-6x - y)^2$

⑥ $(8 + 6x)(8 - 6x)$

2 次の式を工夫して計算しなさい。

① 207×193

② 199^2

③ 208^2

④ 191×201

1 次の式を展開しなさい。

$$\begin{aligned} \textcircled{1} \quad & (3x+5)(3x+8) \\ &= (3x)^2 + (5+8) \times 3x + 5 \times 8 \\ &= 9x^2 + 39x + 40 \end{aligned}$$

$$\begin{aligned} \textcircled{2} \quad & (4x+9y)^2 \\ &= (4x)^2 + 2 \times 9y \times 4x + (9y)^2 \\ &= 16x^2 + 72xy + 81y^2 \end{aligned}$$

$$\begin{aligned} \textcircled{3} \quad & (6x-2y)^2 \\ &= (6x)^2 - 2 \times 2y \times 6x + (2y)^2 \\ &= 36x^2 - 24xy + 4y^2 \end{aligned}$$

$$\begin{aligned} \textcircled{4} \quad & (7x+9y)(7x-9y) \\ &= (7x)^2 - (9y)^2 \\ &= 49x^2 - 81y^2 \end{aligned}$$

$$\begin{aligned} \textcircled{5} \quad & (-6x-y)^2 \\ &= (-6x)^2 - 2 \times y \times (-6x) + y^2 \\ &= 36x^2 + 12xy + y^2 \end{aligned}$$

$$\begin{aligned} \textcircled{6} \quad & (8+6x)(8-6x) \\ &= 8^2 - (6x)^2 \\ &= 64 - 36x^2 \end{aligned}$$

2 次の式を工夫して計算しなさい。

$$\begin{aligned} \textcircled{1} \quad & 207 \times 193 \\ &= (200+7)(200-7) \\ &= 200^2 - 7^2 \\ &= 40000 - 49 \\ &= 39951 \end{aligned}$$

$$\begin{aligned} \textcircled{2} \quad & 199^2 \\ &= (200-1)^2 \\ &= 200^2 - 2 \times 1 \times 200 + 1^2 \\ &= 40000 - 400 + 1 \\ &= 39601 \end{aligned}$$

$$\begin{aligned} \textcircled{3} \quad & 208^2 \\ &= (200+8)^2 \\ &= 200^2 + 2 \times 8 \times 200 + 8^2 \\ &= 40000 + 3200 + 64 \\ &= 43264 \end{aligned}$$

$$\begin{aligned} \textcircled{4} \quad & 191 \times 201 \\ &= (200-9)(200+1) \\ &= 200^2 + \{(-9)+1\} \times 200 + (-9) \times 1 \\ &= 40000 - 1600 - 9 \\ &= 38391 \end{aligned}$$