

1 次の式を展開しなさい。

①  $(x+3)(x+4)$

②  $(x+7)^2$

③  $(x-2)^2$

④  $(x+5)(x-5)$

⑤  $(x+4)^2$

⑥  $(x-6)(x+8)$

⑦  $(x+2)(x-2)$

⑧  $(x+4)(x-3)$

⑨  $(x+0.5)^2$

⑩  $(x+0.3)(x-0.3)$

⑪  $\left(x - \frac{1}{2}\right)^2$

⑫  $\left(x + \frac{2}{3}\right)\left(x - \frac{2}{3}\right)$

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$$\begin{aligned} \textcircled{1} \quad & (x+3)(x+4) \\ & = x^2 + (3+4)x + 3 \times 4 \\ & = x^2 + 7x + 12 \end{aligned}$$

$$\begin{aligned} \textcircled{2} \quad & (x+7)^2 \\ & = x^2 + 2 \times 7 \times x + 7^2 \\ & = x^2 + 14x + 49 \end{aligned}$$

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

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

$$\begin{aligned} \textcircled{5} \quad & (x+4)^2 \\ & = x^2 + 2 \times 4 \times x + 4^2 \\ & = x^2 + 8x + 16 \end{aligned}$$

$$\begin{aligned} \textcircled{6} \quad & (x-6)(x+8) \\ & = x^2 + \{(-6) + 8\}x + (-6) \times 8 \\ & = x^2 + 2x - 48 \end{aligned}$$

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

$$\begin{aligned} \textcircled{8} \quad & (x+4)(x-3) \\ & = x^2 + \{4 + (-3)\}x + 4 \times (-3) \\ & = x^2 + x - 12 \end{aligned}$$

$$\begin{aligned} \textcircled{9} \quad & (x+0.5)^2 \\ & = x^2 + 2 \times 0.5 \times x + 0.5^2 \\ & = x^2 + x + 0.25 \end{aligned}$$

$$\begin{aligned} \textcircled{10} \quad & (x+0.3)(x-0.3) \\ & = x^2 - 0.3^2 \\ & = x^2 - 0.09 \end{aligned}$$

$$\begin{aligned} \textcircled{11} \quad & \left(x - \frac{1}{2}\right)^2 \\ & = x^2 - 2 \times \left(\frac{1}{2}\right) \times x + \left(\frac{1}{2}\right)^2 \\ & = x^2 - x + \frac{1}{4} \end{aligned}$$

$$\begin{aligned} \textcircled{12} \quad & \left(x + \frac{2}{3}\right) \left(x - \frac{2}{3}\right) \\ & = x^2 - \left(\frac{2}{3}\right)^2 \\ & = x^2 - \frac{4}{9} \end{aligned}$$