

展開と因数分解 [乗法公式を利用した展開 (1)]

<演習問題>

次の式を展開せよ。

(1) $(x + 1)(x + 3)$

(2) $(x + 1)(x - 2)$

(3) $(x - 2)(x + 5)$

(4) $(x - 1)(x - 6)$

(5) $(x - 2)(x - 3)$

(6) $(x + 2)(x - 3)$

(7) $(x + 2)(x + 4)$

(8) $(x + 1)(x - 4)$

(9) $(x + 2)(x + 4)$

(10) $(x + 1)(x + 10)$

(11) $(x - 1)(x + 7)$

(12) $(x + 8)(x + 9)$

(13) $(x + 10)(x - 11)$

(14) $(x + 2)(x - 4)$

(15) $(x - 6)(x + 4)$

(16) $(x + 3)(x + 8)$

(17) $(x + 12)(x - 2)$

(18) $(x - 1)(x + 24)$

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次の式を展開せよ。

(1) $(x + 1)(x + 3)$

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

(2) $(x + 1)(x - 2)$

$$\begin{aligned}(x + 1)(x - 2) &= x^2 + (1 - 2)x + 1 \times (-2) \\ &= x^2 - x - 2\end{aligned}$$

(3) $(x - 2)(x + 5)$

$$\begin{aligned}(x - 2)(x + 5) &= x^2 + (-2 + 5)x + (-2) \times 5 \\ &= x^2 + 3x - 10\end{aligned}$$

(4) $(x - 1)(x - 6)$

$$\begin{aligned}(x - 1)(x - 6) &= x^2 + (-1 - 6)x + (-1) \times (-6) \\ &= x^2 - 7x + 6\end{aligned}$$

(5) $(x - 2)(x - 3)$

$$\begin{aligned}(x - 2)(x - 3) &= x^2 + (-2 - 3)x + (-2) \times (-3) \\ &= x^2 - 5x + 6\end{aligned}$$

(6) $(x + 2)(x - 3)$

$$\begin{aligned}(x + 2)(x - 3) &= x^2 + (2 - 3)x + 2 \times (-3) \\ &= x^2 - x - 6\end{aligned}$$

(7) $(x + 2)(x + 4)$

$$\begin{aligned}(x + 2)(x + 4) &= x^2 + (2 + 4)x + 2 \times 4 \\ &= x^2 + 6x + 8\end{aligned}$$

(8) $(x + 1)(x - 4)$

$$\begin{aligned}(x + 1)(x - 4) &= x^2 + (1 - 4)x + 1 \times (-4) \\ &= x^2 - 3x - 4\end{aligned}$$

(9) $(x + 2)(x + 4)$

$$\begin{aligned}(x + 2)(x + 4) &= x^2 + (2 + 4)x + 2 \times 4 \\ &= x^2 + 6x + 8\end{aligned}$$

(10) $(x + 1)(x + 10)$

$$\begin{aligned}(x + 1)(x + 10) &= x^2 + (1 + 10)x + 1 \times 10 \\ &= x^2 + 11x + 10\end{aligned}$$

(11) $(x - 1)(x + 7)$

$$\begin{aligned}(x - 1)(x + 7) &= x^2 + (-1 + 7)x + (-1) \times 7 \\ &= x^2 + 6x - 7\end{aligned}$$

(12) $(x + 8)(x + 9)$

$$\begin{aligned}(x + 8)(x + 9) &= x^2 + (8 + 9)x + 8 \times 9 \\ &= x^2 + 17x + 72\end{aligned}$$

(13) $(x + 10)(x - 11)$

$$\begin{aligned}(x + 10)(x - 11) &= x^2 + (10 - 11)x + 10 \times (-11) \\ &= x^2 - x - 110\end{aligned}$$

(14) $(x + 2)(x - 4)$

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

(15) $(x - 6)(x + 4)$

$$\begin{aligned}(x - 6)(x + 4) &= x^2 + (-6 + 4)x + (-6) \times 4 \\ &= x^2 - 2x - 24\end{aligned}$$

(16) $(x + 3)(x + 8)$

$$\begin{aligned}(x + 3)(x + 8) &= x^2 + (3 + 8)x + 3 \times 8 \\ &= x^2 + 11x + 24\end{aligned}$$

(17) $(x + 12)(x - 2)$

$$\begin{aligned}(x + 12)(x - 2) &= x^2 + (12 - 2)x + 12 \times (-2) \\ &= x^2 + 10x - 24\end{aligned}$$

(18) $(x - 1)(x + 24)$

$$\begin{aligned}(x - 1)(x + 24) &= x^2 + (-1 + 24)x + (-1) \times 24 \\ &= x^2 + 23x - 24\end{aligned}$$