

式の展開

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■ 次の式を計算しなさい。

① $4(a+1)(a-8)+(a-4)(a+6)$

② $(a-9)(a+4)+(a-5)(a+7)$

③ $a(a-3)+9(a+1)^2$

④ $-6(-8-5a)+(a-5)(a+9)$

⑤ $(x-5)(x-7)-4(8x-1)$

⑥ $(x+3)(x+7)+8(x+3)(x-3)$

⑦ $9a(a+7)+(a+2)(a+7)$

⑧ $-(a-6b)(a+9b)+(a-4b)(a+3b)$

⑨ $-7(a+3)(a+1)+(a-5)(a-9)$

⑩ $(x-4y)(x+2y)+(x+8y)(x-4y)$

⑪ $(x-8)(x+9)+5(x-3)(x-2)$

⑫ $(a+4)^2+2(-7a-4)$

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■ 次の式を計算しなさい。

$$\begin{aligned}\textcircled{1} & 4(a+1)(a-8)+(a-4)(a+6) \\ &= 4(a^2-7a-8)+(a^2+2a-24) \\ &= 4a^2-28a-32+a^2+2a-24 \\ &= 5a^2-26a-56\end{aligned}$$

$$\begin{aligned}\textcircled{2} & (a-9)(a+4)+(a-5)(a+7) \\ &= (a^2-5a-36)+(a^2+2a-35) \\ &= a^2-5a-36+a^2+2a-35 \\ &= 2a^2-3a-71\end{aligned}$$

$$\begin{aligned}\textcircled{3} & a(a-3)+9(a+1)^2 \\ &= (a^2-3a)+9(a^2+2a+1) \\ &= a^2-3a+9a^2+18a+9 \\ &= 10a^2+15a+9\end{aligned}$$

$$\begin{aligned}\textcircled{4} & -6(-8-5a)+(a-5)(a+9) \\ &= -6(-8-5a)+(a^2+4a-45) \\ &= 48+30a+a^2+4a-45 \\ &= a^2+34a+3\end{aligned}$$

$$\begin{aligned}\textcircled{5} & (x-5)(x-7)-4(8x-1) \\ &= (x^2-12x+35)-4(8x-1) \\ &= x^2-12x+35-32x+4 \\ &= x^2-44x+39\end{aligned}$$

$$\begin{aligned}\textcircled{6} & (x+3)(x+7)+8(x+3)(x-3) \\ &= (x^2+10x+21)+8(x^2-9) \\ &= x^2+10x+21+8x^2-72 \\ &= 9x^2+10x-51\end{aligned}$$

$$\begin{aligned}\textcircled{7} & 9a(a+7)+(a+2)(a+7) \\ &= 9(a^2+7a)+(a^2+9a+14) \\ &= 9a^2+63a+a^2+9a+14 \\ &= 10a^2+72a+14\end{aligned}$$

$$\begin{aligned}\textcircled{8} & -(a-6b)(a+9b)+(a-4b)(a+3b) \\ &= -(a^2+3ab-54b^2)+(a^2-ab-12b^2) \\ &= -a^2-3ab+54b^2+a^2-ab-12b^2 \\ &= -4ab+42b^2\end{aligned}$$

$$\begin{aligned}\textcircled{9} & -7(a+3)(a+1)+(a-5)(a-9) \\ &= -7(a^2+4a+3)+(a^2-14a+45) \\ &= -7a^2-28a-21+a^2-14a+45 \\ &= -6a^2-42a+24\end{aligned}$$

$$\begin{aligned}\textcircled{10} & (x-4y)(x+2y)+(x+8y)(x-4y) \\ &= (x^2-2xy-8y^2)+(x^2+4xy-32y^2) \\ &= x^2-2xy-8y^2+x^2+4xy-32y^2 \\ &= 2x^2+2xy-40y^2\end{aligned}$$

$$\begin{aligned}\textcircled{11} & (x-8)(x+9)+5(x-3)(x-2) \\ &= (x^2+x-72)+5(x^2-5x+6) \\ &= x^2+x-72+5x^2-25x+30 \\ &= 6x^2-24x-42\end{aligned}$$

$$\begin{aligned}\textcircled{12} & (a+4)^2+2(-7a-4) \\ &= (a^2+8a+16)+2(-7a-4) \\ &= a^2+8a+16-14a-8 \\ &= a^2-6a+8\end{aligned}$$