

1 次の式を平方完成しなさい。

1. $2x^2 + 4x$

2. $3x^2 - 12x$

3. $5x^2 + 80x$

4. $-2x^2 + 16x$

5. $-3x^2 - 18x$

6. $-x^2 + 12x$

2 次の式を平方完成しなさい。

1. $2x^2 + 2x$

2. $4x^2 - 12x$

3. $3x^2 - 15x$

4. $-x^2 - 7x$

5. $-6x^2 + 6x$

6. $-4x^2 + 20x$

1 次の式を平方完成しなさい。

1. $2x^2 + 4x$

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

2. $3x^2 - 12x$

$$\begin{aligned} &= 3(x^2 - 4x) \\ &= 3\{(x-2)^2 - 4\} \\ &= 3(x-2)^2 - 12 \end{aligned}$$

3. $5x^2 + 80x$

$$\begin{aligned} &= 5(x^2 + 16x) \\ &= 5\{(x+8)^2 - 64\} \\ &= 5(x+8)^2 - 320 \end{aligned}$$

4. $-2x^2 + 16x$

$$\begin{aligned} &= -2(x^2 - 8x) \\ &= -2\{(x-4)^2 - 16\} \\ &= -2(x-4)^2 + 32 \end{aligned}$$

5. $-3x^2 - 18x$

$$\begin{aligned} &= -3(x^2 + 6x) \\ &= -3\{(x+3)^2 - 9\} \\ &= -3(x+3)^2 + 27 \end{aligned}$$

6. $-x^2 + 12x$

$$\begin{aligned} &= -(x^2 - 12x) \\ &= -\{(x-6)^2 - 36\} \\ &= -(x-6)^2 + 36 \end{aligned}$$

2 次の式を平方完成しなさい。

1. $2x^2 + 2x$

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

2. $4x^2 - 12x$

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

3. $3x^2 - 15x$

$$\begin{aligned} &= 3(x^2 - 5x) \\ &= 3\left\{\left(x - \frac{5}{2}\right)^2 - \frac{25}{4}\right\} \\ &= 3\left(x - \frac{5}{2}\right)^2 - \frac{75}{4} \end{aligned}$$

4. $-x^2 - 7x$

$$\begin{aligned} &= -(x^2 + 7x) \\ &= -\left\{\left(x + \frac{7}{2}\right)^2 - \frac{49}{4}\right\} \\ &= -\left(x + \frac{7}{2}\right)^2 + \frac{49}{4} \end{aligned}$$

5. $-6x^2 + 6x$

$$\begin{aligned} &= -6(x^2 - x) \\ &= -6\left\{\left(x - \frac{1}{2}\right)^2 - \frac{1}{4}\right\} \\ &= -6\left(x - \frac{1}{2}\right)^2 + \frac{3}{2} \end{aligned}$$

6. $-4x^2 + 20x$

$$\begin{aligned} &= -4(x^2 - 5x) \\ &= -4\left\{\left(x - \frac{5}{2}\right)^2 - \frac{25}{4}\right\} \\ &= -4\left(x - \frac{5}{2}\right)^2 + 25 \end{aligned}$$