平方完成 0105-3

1. 次の 2 次関数を平方完成しなさい。

(1) $y = x^2 + 4x$

(2) $y = x^2 - 8x + 15$

(3) $y = x^2 - 2x - 2$

(4) $y = x^2 + 4x + 3$

(5) $y = x^2 + 10x + 24$

(6) $y = x^2 + 4x + 7$

(7) $y = x^2 - 4x + 8$

(8) $y = x^2 + 6x + 11$

(9) $y = x^2 + 10x + 23$

(10) $y = x^2 + 10x + 29$

2. 次の 2 次関数を平方完成しなさい。

(1) $y = x^2 + x - 2$

(2) $y = x^2 - 4x - 2$

(3) $y = x^2 - 4x$

(4) $y = x^2 + 3x + 2$

(5) $y = x^2 + 4x - 4$

(6) $y = x^2 + 5x + 5$

(7) $y = x^2 + x - 3$

(8) $y = x^2 - 3x - 4$

(9) $y = x^2 - 3x$

(10) $y = x^2 + 2x + 5$

3. 次の 2 次関数を平方完成しなさい。

(1) $y = x^2 - 8x - 6$

(2) $y = 4x^2 - 24x - 2$

(3) $y = -x^2 - 6x + 4$

(4) $y = -2x^2 + 12x$

(5) $y = -5x^2 + 20x - 5$

(6) $y = 5x^2 - 10x - 2$

(7) $y = -4x^2 - 16x + 1$

(8) $y = 5x^2 + 10x + 6$

(9) $y = 5x^2 + 30x - 10$

(10) $y = 3x^2 + 6x - 6$

4. 次の 2 次関数を平方完成しなさい。

(1) $y = -4x^2 - 4x + 7$

(2) $y = -4x^2 - 3x + 6$

(3) $y = 2x^2 + 7x + 2$

(4) $y = -4x^2 + x - 6$

(5) $y = -2x^2 - x - 5$

(6) $y = 2x^2 + 9x + 6$

(7) $y = -4x^2 - 8x - 3$

(8) $y = 3x^2 + 8x + 4$

(9) $y = -2x^2 + 3x + 5$

(10) $y = 3x^2 - 10x - 5$

5. 次の 2 次関数を平方完成しなさい。

(1) $y = -x^2 - x + \frac{4}{3}$

(2) $y = \frac{2}{3}x^2 - \frac{5}{2}x + \frac{2}{3}$

(3) $y = \frac{1}{2}x^2 + \frac{2}{3}x + \frac{2}{3}$

(4) $y = -\frac{1}{3}x^2 + \frac{3}{2}x + 2$

(5) $y = -\frac{2}{3}x^2 - \frac{1}{2}x + 2$

(6) $y = x^2 - 2x - 1$

(7) $y = x^2 - \frac{1}{3}x + 2$

(8) $y = x^2 + \frac{5}{3}x + \frac{1}{3}$

(9) $y = \frac{3}{2}x^2 - x + \frac{3}{2}$

(10) $y = -\frac{5}{4}x^2 + \frac{1}{2}x - \frac{1}{2}$

平方完成 0105-3

1. 次の 2 次関数を平方完成しなさい。

(1) $y = x^2 + 4x$

$$\boldsymbol{y = (x+2)^2 - 4}$$

(2) $y = x^2 - 8x + 15$

$$\boldsymbol{y = (x-4)^2 - 1}$$

(3) $y = x^2 - 2x - 2$

$$\boldsymbol{y = (x-1)^2 - 3}$$

(4) $y = x^2 + 4x + 3$

$$\boldsymbol{y = (x+2)^2 - 1}$$

(5) $y = x^2 + 10x + 24$

$$\boldsymbol{y = (x+5)^2 - 1}$$

(6) $y = x^2 + 4x + 7$

$$\boldsymbol{y = (x+2)^2 + 3}$$

(7) $y = x^2 - 4x + 8$

$$\boldsymbol{y = (x-2)^2 + 4}$$

(8) $y = x^2 + 6x + 11$

$$\boldsymbol{y = (x+3)^2 + 2}$$

(9) $y = x^2 + 10x + 23$

$$\boldsymbol{y = (x+5)^2 - 2}$$

(10) $y = x^2 + 10x + 29$

$$\boldsymbol{y = (x+5)^2 + 4}$$

2. 次の 2 次関数を平方完成しなさい。

(1) $y = x^2 + x - 2$

$$\boldsymbol{y = \left(x + \frac{1}{2}\right)^2 - \frac{9}{4}}$$

(2) $y = x^2 - 4x - 2$

$$\boldsymbol{y = (x - 2)^2 - 6}$$

(3) $y = x^2 - 4x$

$$\boldsymbol{y = (x - 2)^2 - 4}$$

(4) $y = x^2 + 3x + 2$

$$\boldsymbol{y = \left(x + \frac{3}{2}\right)^2 - \frac{1}{4}}$$

(5) $y = x^2 + 4x - 4$

$$\boldsymbol{y = (x + 2)^2 - 8}$$

(6) $y = x^2 + 5x + 5$

$$\boldsymbol{y = \left(x + \frac{5}{2}\right)^2 - \frac{5}{4}}$$

(7) $y = x^2 + x - 3$

$$\boldsymbol{y = \left(x + \frac{1}{2}\right)^2 - \frac{13}{4}}$$

(8) $y = x^2 - 3x - 4$

$$\boldsymbol{y = \left(x - \frac{3}{2}\right)^2 - \frac{25}{4}}$$

(9) $y = x^2 - 3x$

$$\boldsymbol{y = \left(x - \frac{3}{2}\right)^2 - \frac{9}{4}}$$

(10) $y = x^2 + 2x + 5$

$$\boldsymbol{y = (x + 1)^2 + 4}$$

3. 次の 2 次関数を平方完成しなさい。

(1) $y = x^2 - 8x - 6$

$$\boldsymbol{y = (x-4)^2 - 22}$$

(2) $y = 4x^2 - 24x - 2$

$$\boldsymbol{y = 4(x-3)^2 - 38}$$

(3) $y = -x^2 - 6x + 4$

$$\boldsymbol{y = -(x+3)^2 + 13}$$

(4) $y = -2x^2 + 12x$

$$\boldsymbol{y = -2(x-3)^2 + 18}$$

(5) $y = -5x^2 + 20x - 5$

$$\boldsymbol{y = -5(x-2)^2 + 15}$$

(6) $y = 5x^2 - 10x - 2$

$$\boldsymbol{y = 5(x-1)^2 - 7}$$

(7) $y = -4x^2 - 16x + 1$

$$\boldsymbol{y = -4(x+2)^2 + 17}$$

(8) $y = 5x^2 + 10x + 6$

$$\boldsymbol{y = 5(x+1)^2 + 1}$$

(9) $y = 5x^2 + 30x - 10$

$$\boldsymbol{y = 5(x+3)^2 - 55}$$

(10) $y = 3x^2 + 6x - 6$

$$\boldsymbol{y = 3(x+1)^2 - 9}$$

4. 次の 2 次関数を平方完成しなさい。

(1) $y = -4x^2 - 4x + 7$

$$\boldsymbol{y = -4\left(x + \frac{1}{2}\right)^2 + 8}$$

(2) $y = -4x^2 - 3x + 6$

$$\boldsymbol{y = -4\left(x + \frac{3}{8}\right)^2 + \frac{105}{16}}$$

(3) $y = 2x^2 + 7x + 2$

$$\boldsymbol{y = 2\left(x + \frac{7}{4}\right)^2 - \frac{33}{8}}$$

(4) $y = -4x^2 + x - 6$

$$\boldsymbol{y = -4\left(x - \frac{1}{8}\right)^2 - \frac{95}{16}}$$

(5) $y = -2x^2 - x - 5$

$$\boldsymbol{y = -2\left(x + \frac{1}{4}\right)^2 - \frac{39}{8}}$$

(6) $y = 2x^2 + 9x + 6$

$$\boldsymbol{y = 2\left(x + \frac{9}{4}\right)^2 - \frac{33}{8}}$$

(7) $y = -4x^2 - 8x - 3$

$$\boldsymbol{y = -4(x + 1)^2 + 1}$$

(8) $y = 3x^2 + 8x + 4$

$$\boldsymbol{y = 3\left(x + \frac{4}{3}\right)^2 - \frac{4}{3}}$$

(9) $y = -2x^2 + 3x + 5$

$$\boldsymbol{y = -2\left(x - \frac{3}{4}\right)^2 + \frac{49}{8}}$$

(10) $y = 3x^2 - 10x - 5$

$$\boldsymbol{y = 3\left(x - \frac{5}{3}\right)^2 - \frac{40}{3}}$$

5. 次の 2 次関数を平方完成しなさい。

(1) $y = -x^2 - x + \frac{4}{3}$

$$\boldsymbol{y = -\left(x + \frac{1}{2}\right)^2 + \frac{19}{12}}$$

(2) $y = \frac{2}{3}x^2 - \frac{5}{2}x + \frac{2}{3}$

$$\boldsymbol{y = \frac{2}{3}\left(x - \frac{15}{8}\right)^2 - \frac{161}{96}}$$

(3) $y = \frac{1}{2}x^2 + \frac{2}{3}x + \frac{2}{3}$

$$\boldsymbol{y = \frac{1}{2}\left(x + \frac{2}{3}\right)^2 + \frac{4}{9}}$$

(4) $y = -\frac{1}{3}x^2 + \frac{3}{2}x + 2$

$$\boldsymbol{y = -\frac{1}{3}\left(x - \frac{9}{4}\right)^2 + \frac{59}{16}}$$

(5) $y = -\frac{2}{3}x^2 - \frac{1}{2}x + 2$

$$\boldsymbol{y = -\frac{2}{3}\left(x + \frac{3}{8}\right)^2 + \frac{67}{32}}$$

(6) $y = x^2 - 2x - 1$

$$\boldsymbol{y = (x-1)^2 - 2}$$

(7) $y = x^2 - \frac{1}{3}x + 2$

$$\boldsymbol{y = \left(x - \frac{1}{6}\right)^2 + \frac{71}{36}}$$

(8) $y = x^2 + \frac{5}{3}x + \frac{1}{3}$

$$\boldsymbol{y = \left(x + \frac{5}{6}\right)^2 - \frac{13}{36}}$$

(9) $y = \frac{3}{2}x^2 - x + \frac{3}{2}$

$$\boldsymbol{y = \frac{3}{2}\left(x - \frac{1}{3}\right)^2 + \frac{4}{3}}$$

(10) $y = -\frac{5}{4}x^2 + \frac{1}{2}x - \frac{1}{2}$

$$\boldsymbol{y = -\frac{5}{4}\left(x - \frac{1}{5}\right)^2 - \frac{9}{20}}$$