

2次方程式 [いろいろな2次方程式]

<演習問題>

次の方程式を解け。

(1) $(x - 1)(x + 2) = 10$

(6) $(x + 8)(x + 1) = -2x(x + 3) - 10$

(2) $(x - 5)(x + 1) = 16$

(7) $(x + 5)^2 = -x(x - 20) + 27$

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

(8) $(x + 1)(x - 9) = -2x(x - 1) - 14$

(4) $(x - 4)(x + 4) = 12(x + 1)$

(9) $(x + 8)^2 + 2x(x - 5) - 136 = 0$

(5) $(x + 1)(x - 3) = -x(x - 4) + 17$

2次方程式 [いろいろな2次方程式]

<演習問題>

次の方程式を解け。

$$(1) (x-1)(x+2) = 10$$

$$(x-1)(x+2) = 10$$

$$x^2 + x - 2 = 10$$

$$x^2 + x - 12 = 0$$

$$(x-3)(x+4) = 0$$

$$x = 3, -4$$

$$(2) (x-5)(x+1) = 16$$

$$(x-5)(x+1) = 16$$

$$x^2 - 4x - 5 = 16$$

$$x^2 - 4x - 21 = 0$$

$$(x-7)(x+3) = 0$$

$$x = 7, -3$$

$$(3) (x-2)^2 = 2(x+1)$$

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

$$x^2 - 4x + 4 = 2x + 2$$

$$x^2 - 6x + 2 = 0$$

$$x = \frac{-(-6) \pm \sqrt{(-6)^2 - 4 \times 1 \times 2}}{2 \times 1}$$

$$x = \frac{6 \pm \sqrt{28}}{2}$$

$$x = 3 \pm \sqrt{7}$$

$$(4) (x-4)(x+4) = 12(x+1)$$

$$(x-4)(x+4) = 12(x+1)$$

$$x^2 - 16 = 12x + 12$$

$$x^2 - 12x - 28 = 0$$

$$(x-14)(x+2) = 0$$

$$x = 14, -2$$

$$(5) (x+1)(x-3) = -x(x-4) + 17$$

$$(x+1)(x-3) = -x(x-4) + 17$$

$$x^2 - 2x - 3 = -x^2 + 4x + 17$$

$$2x^2 - 6x - 20 = 0$$

$$x^2 - 3x - 10 = 0$$

$$(x-5)(x+2) = 0$$

$$x = 5, -2$$

$$(6) (x+8)(x+1) = -2x(x+3) - 10$$

$$(x+8)(x+1) = -2x(x+3) - 10$$

$$x^2 + 9x + 8 = -2x^2 - 6x - 10$$

$$3x^2 + 15x + 18 = 0$$

$$x^2 + 5x + 6 = 0$$

$$(x+2)(x+3) = 0$$

$$x = -2, -3$$

$$(7) (x+5)^2 = -x(x-20) + 27$$

$$(x+5)^2 = -x(x-20) + 27$$

$$x^2 + 10x + 25 = -x^2 + 20x + 27$$

$$2x^2 - 10x - 2 = 0$$

$$x^2 - 5x - 1 = 0$$

$$x = \frac{-(-5) \pm \sqrt{(-5)^2 - 4 \times 1 \times (-1)}}{2 \times 1}$$

$$x = \frac{5 \pm \sqrt{29}}{2}$$

$$(8) (x+1)(x-9) = -2x(x-1) - 14$$

$$(x+1)(x-9) = -2x(x-1) - 14$$

$$x^2 - 8x - 9 = -2x^2 + 2x - 14$$

$$3x^2 - 10x + 5 = 0$$

$$x = \frac{-(-10) \pm \sqrt{(-10)^2 - 4 \times 3 \times 5}}{2 \times 3}$$

$$x = \frac{10 \pm \sqrt{40}}{6}$$

$$x = \frac{5 \pm \sqrt{10}}{3}$$

$$(9) (x+8)^2 + 2x(x-5) - 136 = 0$$

$$(x+8)^2 + 2x(x-5) - 136 = 0$$

$$x^2 + 16x + 64 + 2x^2 - 10x - 136 = 0$$

$$3x^2 + 6x - 72 = 0$$

$$x^2 + 2x - 24 = 0$$

$$(x-4)(x+6) = 0$$

$$x = 4, -6$$